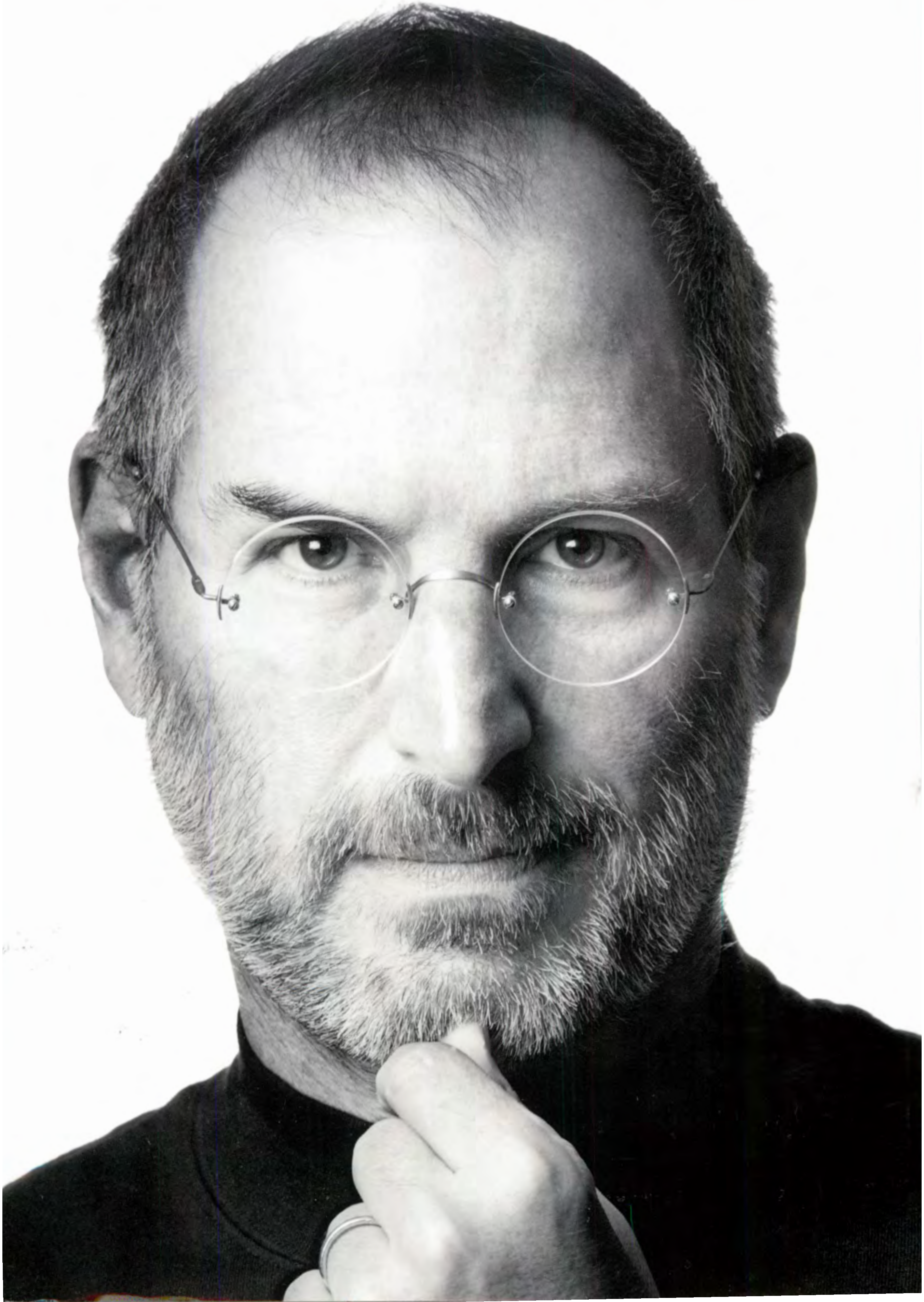
Steve Jobs by Walter Isaacson



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FROM THE AUTHOR OF THE BESTSELLING BIOGRAPHIES OF BENJAMIN FRANKLIN AND ALBERT EINSTEIN, THIS IS THE EXCLUSIVE BIOGRAPHY OF STEVE JOBS.

Based on more than forty interviews with Jobs conducted over two years—as well as interviews with more than a hundred family members, friends, adversaries, competitors, and colleagues—Walter Isaacson has written a riveting story of the roller-coaster life and searingly intense personality of a creative entrepreneur whose passion for perfection and ferocious drive revolutionized six industries: personal computers, animated movies, music, phones, tablet computing, and digital publishing.

At a time when America is seeking ways to sustain its innovative edge, Jobs stands as the ultimate icon of inventiveness and applied imagination. He knew that the best way to create value in the twenty-first century was to connect creativity with technology. He built a company where leaps of the imagination were combined with remarkable feats of engineering.

Although Jobs cooperated with this book, he asked for no control over what was written nor even the right to read it before it was published. He put nothing off-limits. He encouraged the people he knew to speak honestly. And Jobs speaks candidly, sometimes brutally so, about the people he worked with and competed against. His friends, foes, and colleagues provide an unvarnished view of the passions, perfectionism, obsessions, artistry, devilry, and compulsion for control that shaped his approach to business and the innovative products that resulted.

Driven by demons, Jobs could drive those around him to fury and despair. But his personality and products were interrelated, just as Apple's hardware and software tended to be, as if part of an integrated system. His tale is instructive and cautionary, filled with lessons about innovation, character, leadership, and values.

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STEVE JOBS

WALTER ISAACSON

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The people who are crazy enough
to think they can change
the world are the ones who do.

—Apple's "Think Different" commercial, 1997

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CHARACTERS

Al Alcorn. Chief engineer at Atari, who designed Pong and hired Jobs.

Gil Amelio. Became CEO of Apple in 1996, bought NeXT, bringing Jobs back.

Bill Atkinson. Early Apple employee, developed graphics for the Macintosh.

Chrisann Brennan. Jobs's girlfriend at Homestead High, mother of his daughter Lisa.

Lisa Brennan-Jobs. Daughter of Jobs and Chrisann Brennan, born in 1978; became a writer in New York City.

Nolan Bushnell. Founder of Atari and entrepreneurial role model for Jobs.

Bill Campbell. Apple marketing chief during Jobs's first stint at Apple and board member and confidant after Jobs's return in 1997.

Edwin Catmull. A cofounder of Pixar and later a Disney executive.

Kobun Chino. A Sōtō Zen master in California who became Jobs's spiritual teacher.

Lee Clow. Advertising wizard who created Apple's "1984" ad and worked with Jobs for three decades.

Deborah "Debi" Coleman. Early Mac team manager who took over Apple manufacturing.

Tim Cook. Steady, calm, chief operating officer hired by Jobs in 1998; replaced Jobs as Apple CEO in August 2011.

Eddy Cue. Chief of Internet services at Apple, Jobs's wingman in dealing with content companies.

Andrea "Andy" Cunningham. Publicist at Regis McKenna's firm who handled Apple in the early Macintosh years.

Michael Eisner. Hard-driving Disney CEO who made the Pixar deal, then clashed with Jobs.

Larry Ellison. CEO of Oracle and personal friend of Jobs.

Tony Fadell. Punky engineer brought to Apple in 2001 to develop the iPod.

Scott Forstall. Chief of Apple's mobile device software.

Robert Friedland. Reed student, proprietor of an apple farm commune, and spiritual seeker who influenced Jobs, then went on to run a mining company.

Jean-Louis Gassée. Apple's manager in France, took over the Macintosh division when Jobs was ousted in 1985.

Bill Gates. The other computer wunderkind born in 1955.

Andy Hertzfeld. Playful, friendly software engineer and Jobs's pal on the original Mac team.

Joanna Hoffman. Original Mac team member with the spirit to stand up to Jobs.

Elizabeth Holmes. Daniel Kottke's girlfriend at Reed and early Apple employee.

Rod Holt. Chain-smoking Marxist hired by Jobs in 1976 to be the electrical engineer on the Apple II.

Robert Iger. Succeeded Eisner as Disney CEO in 2005.

Jonathan "Jony" Ive. Chief designer at Apple, became Jobs's partner and confidant.

Abdulfattah "John" Jandali. Syrian-born graduate student in Wisconsin who became biological father of Jobs and Mona Simpson, later a food and beverage manager at the Boomtown casino near Reno.

Clara Hagopian Jobs. Daughter of Armenian immigrants, married Paul Jobs in 1946; they adopted Steve soon after his birth in 1955.

Erin Jobs. Middle child of Laurene Powell and Steve Jobs.

Eve Jobs. Youngest child of Laurene and Steve.

Patty Jobs. Adopted by Paul and Clara Jobs two years after they adopted Steve.

Paul Reinhold Jobs. Wisconsin-born Coast Guard seaman who, with his wife, Clara, adopted Steve in 1955.

Reed Jobs. Oldest child of Steve Jobs and Laurene Powell.

Ron Johnson. Hired by Jobs in 2000 to develop Apple's stores.

Jeffrey Katzenberg. Head of Disney Studios, clashed with Eisner and resigned in 1994 to cofound DreamWorks SKG.

Daniel Kottke. Jobs's closest friend at Reed, fellow pilgrim to India, early Apple employee.

John Lasseter. Cofounder and creative force at Pixar.

Dan'l Lewin. Marketing exec with Jobs at Apple and then NeXT.

Mike Markkula. First big Apple investor and chairman, a father figure to Jobs.

Regis McKenna. Publicity whiz who guided Jobs early on and remained a trusted advisor.

Mike Murray. Early Macintosh marketing director.

Paul Otellini. CEO of Intel who helped switch the Macintosh to Intel chips but did not get the iPhone business.

Laurene Powell. Savvy and good-humored Penn graduate, went to Goldman Sachs and then Stanford Business School, married Steve Jobs in 1991.

George Riley. Jobs's Memphis-born friend and lawyer.

Arthur Rock. Legendary tech investor, early Apple board member, Jobs's father figure.

Jonathan "Ruby" Rubinstein. Worked with Jobs at NeXT, became chief hardware engineer at Apple in 1997.

Mike Scott. Brought in by Markkula to be Apple's president in 1977 to try to manage Jobs.

John Sculley. Pepsi executive recruited by Jobs in 1983 to be Apple's CEO, clashed with and ousted Jobs in 1985.

Joanne Schieble Jandali Simpson. Wisconsin-born biological mother of Steve Jobs, whom she put up for adoption, and Mona Simpson, whom she raised.

Mona Simpson. Biological full sister of Jobs; they discovered their relationship in 1986 and became close. She wrote novels loosely based on her mother Joanne (*Anywhere but Here*), Jobs and his daughter Lisa (*A Regular Guy*), and her father Abdulfattah Jandali (*The Lost Father*).

Alvy Ray Smith. A cofounder of Pixar who clashed with Jobs.

Burrell Smith. Brilliant, troubled programmer on the original Mac team, afflicted with schizophrenia in the 1990s.

Avadis "Avie" Tevanian. Worked with Jobs and Rubinstein at NeXT, became chief software engineer at Apple in 1997.

James Vincent. A music-loving Brit, the younger partner with Lee Clow and Duncan Milner at the ad agency Apple hired.

Ron Wayne. Met Jobs at Atari, became first partner with Jobs and Wozniak at fledgling Apple, but unwisely decided to forgo his equity stake.

Stephen Wozniak. The star electronics geek at Homestead High; Jobs figured out how to package and market his amazing circuit boards and became his partner in founding Apple.

INTRODUCTION

How This Book Came to Be

In the early summer of 2004, I got a phone call from Steve Jobs. He had been scattershot friendly to me over the years, with occasional bursts of intensity, especially when he was launching a new product that he wanted on the cover of *Time* or featured on CNN, places where I'd worked. But now that I was no longer at either of those places, I hadn't heard from him much. We talked a bit about the Aspen Institute, which I had recently joined, and I invited him to speak at our summer campus in Colorado. He'd be happy to come, he said, but not to be onstage. He wanted instead to take a walk so that we could talk.

That seemed a bit odd. I didn't yet know that taking a long walk was his preferred way to have a serious conversation. It turned out that he wanted me to write a biography of him. I had recently published one on Benjamin Franklin and was writing one about Albert Einstein, and my initial reaction was to wonder, half jokingly, whether he saw himself as the natural successor in that sequence. Because I assumed that he was still in the middle of an oscillating career that had many more ups and downs left, I demurred. Not now, I said. Maybe in a decade or two, when you retire.

I had known him since 1984, when he came to Manhattan to have lunch with *Time*'s editors and extol his new Macintosh. He was petulant even then, attacking a *Time* correspondent for having wounded him with a story that was too revealing. But talking to him afterward, I found myself rather captivated, as so many others have been over the years, by his engaging intensity. We stayed in touch, even after he was ousted from Apple. When he had something to pitch, such as a NeXT computer or Pixar movie, the beam of his charm would suddenly refocus on me, and he would take me to a sushi restaurant in Lower Manhattan to tell me that whatever he was touting was the best thing he had ever produced. I liked him.

When he was restored to the throne at Apple, we put him on the cover of *Time*, and soon thereafter he began offering me his ideas for a series we were doing on the most influential people of the century. He had launched his "Think Different" campaign, featuring iconic photos of some of the same people we were considering, and he found the endeavor of assessing historic influence fascinating.

After I had deflected his suggestion that I write a biography of him, I heard from him every now and then. At one point I emailed to ask if it was true, as my daughter had told me, that the Apple logo was an homage to Alan Turing, the British computer pioneer who broke the German wartime codes and then committed suicide by biting into a cyanide-laced apple. He replied that he wished he had thought of that, but hadn't. That started an exchange about the early history of Apple, and I found myself gathering string on the subject, just in case I ever decided to do such a book. When my Einstein biography came out, he came to a book event in Palo Alto and pulled me aside to suggest, again, that he would make a good subject.

His persistence baffled me. He was known to guard his privacy, and I had no reason to believe he'd ever read any of my books. Maybe someday, I continued to say. But in 2009 his wife, Laurene Powell, said bluntly, "If you're ever going to do a book on Steve, you'd better do it now." He had just taken a second medical leave. I confessed to her that when he had first raised the idea, I hadn't known he was sick. Almost nobody knew, she said. He had called me right before he was going to be operated on for cancer, and he was still keeping it a secret, she explained.

I decided then to write this book. Jobs surprised me by readily acknowledging that he would have no control over it or even the right to see it in advance. "It's your book," he said. "I won't even read it." But later that fall he seemed to have second thoughts about cooperating and, though I didn't know it, was hit by another round of cancer complications. He stopped returning my calls, and I put the project aside for a while.

Then, unexpectedly, he phoned me late on the afternoon of New Year's Eve 2009. He was at home in Palo Alto with only his sister, the writer Mona Simpson. His wife and their three children had taken a quick trip to go skiing, but he was not healthy enough to join them. He was in a reflective mood, and we talked for more than an hour. He began by recalling that he had wanted to build a frequency counter when he was twelve, and he was able to look up Bill Hewlett, the founder of HP, in the phone book and call him to get parts. Jobs said that the past twelve years of his life, since his return to Apple, had been his most productive in terms of creating new products. But his more important goal, he said, was to do what Hewlett and his friend David Packard had done, which was create a company that was so imbued with innovative creativity that it would outlive them.

"I always thought of myself as a humanities person as a kid, but I liked electronics," he said. "Then I read something that one of my heroes, Edwin Land of Polaroid, said about the importance of people who could stand at the intersection of humanities and sciences, and I decided that's what I wanted to do." It was as if he were suggesting themes for his biography (and in this instance, at least, the theme turned out to be valid). The creativity that can occur when a feel for both the humanities and the sciences combine in one strong personality was the topic that most interested me in my biographies of Franklin and Einstein, and I believe that it will be a key to creating innovative economies in the twenty-first century.

I asked Jobs why he wanted me to be the one to write his biography. "I think you're good at getting people to talk," he replied. That was an unexpected answer. I knew that I would have to interview scores of people he had fired, abused, abandoned, or otherwise infuriated, and I feared he would not be comfortable with my getting them to talk. And indeed he did turn out to be skittish when word trickled back to him of people that I was interviewing. But after a couple of months, he began encouraging people to talk to me, even foes and former girlfriends. Nor did he try to put anything off-limits. "I've done a lot of things I'm not proud of, such as getting my girlfriend pregnant when

I was twenty-three and the way I handled that," he said. "But I don't have any skeletons in my closet that can't be allowed out." He didn't seek any control over what I wrote, or even ask to read it in advance. His only involvement came when my publisher was choosing the cover art. When he saw an early version of a proposed cover treatment, he disliked it so much that he asked to have input in designing a new version. I was both amused and willing, so I readily assented.

I ended up having more than forty interviews and conversations with him. Some were formal ones in his Palo Alto living room, others were done during long walks and drives or by telephone. During my two years of visits, he became increasingly intimate and revealing, though at times I witnessed what his veteran colleagues at Apple used to call his "reality distortion field." Sometimes it was the inadvertent misfiring of memory cells that happens to us all; at other times he was spinning his own version of reality both to me and to himself. To check and flesh out his story, I interviewed more than a hundred friends, relatives, competitors, adversaries, and colleagues.

His wife also did not request any restrictions or control, nor did she ask to see in advance what I would publish. In fact she strongly encouraged me to be honest about his failings as well as his strengths. She is one of the smartest and most grounded people I have ever met. "There are parts of his life and personality that are extremely messy, and that's the truth," she told me early on. "You shouldn't whitewash it. He's good at spin, but he also has a remarkable story, and I'd like to see that it's all told truthfully."

I leave it to the reader to assess whether I have succeeded in this mission. I'm sure there are players in this drama who will remember some of the events differently or think that I sometimes got trapped in Jobs's distortion field. As happened when I wrote a book about Henry Kissinger, which in some ways was good preparation for this project, I found that people had such strong positive and negative emotions about Jobs that the Rashomon effect was often evident. But I've done the best I can to balance conflicting accounts fairly and be transparent about the sources I used.

This is a book about the roller-coaster life and searingly intense personality of a creative entrepreneur whose passion for perfection and ferocious drive revolutionized six industries: personal computers, animated movies, music, phones, tablet computing, and digital publishing. You might even add a seventh, retail stores, which Jobs did not quite revolutionize but did reimagine. In addition, he opened the way for a new market for digital content based on apps rather than just websites. Along the way he produced not only transforming products but also, on his second try, a lasting company, endowed with his DNA, that is filled with creative designers and daredevil engineers who could carry forward his vision. In August 2011, right before he stepped down as CEO, the enterprise he started in his parents' garage became the world's most valuable company.

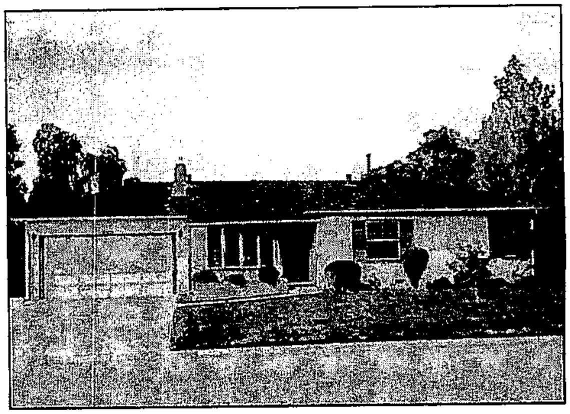
This is also, I hope, a book about innovation. At a time when the United States is seeking ways to sustain its innovative edge, and when societies around the world are trying to build creative digital-age economies, Jobs stands as the ultimate icon of inventiveness, imagination, and sustained innovation. He knew that the best way to create value in the twenty-first century was to connect creativity with technology, so he built a company where leaps of the imagination were combined with remarkable feats of engineering. He and his colleagues at Apple were able to think differently: They developed not merely modest product advances based on focus groups, but whole new devices and services that consumers did not yet know they needed.

He was not a model boss or human being, tidily packaged for emulation. Driven by demons, he could drive those around him to fury and despair. But his personality and passions and products were all interrelated, just as Apple's hardware and software tended to be, as if part of an integrated system. His tale is thus both instructive and cautionary, filled with lessons about innovation, character, leadership, and values.

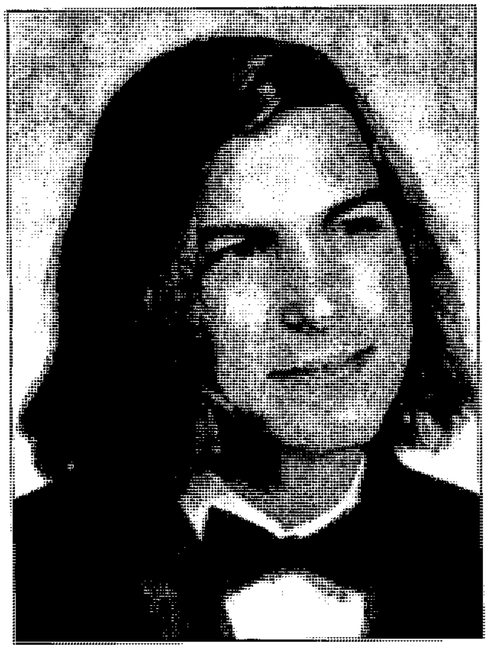
Shakespeare's *Henry V*—the story of a willful and immature prince who becomes a passionate but sensitive, callous but sentimental, inspiring but flawed king—begins with the exhortation "O for a Muse of fire, that would ascend / The brightest heaven of invention." For Steve Jobs, the ascent to the brightest heaven of invention begins with a tale of two sets of parents, and of growing up in a valley that was just learning how to turn silicon into gold.

STEVE JOBS

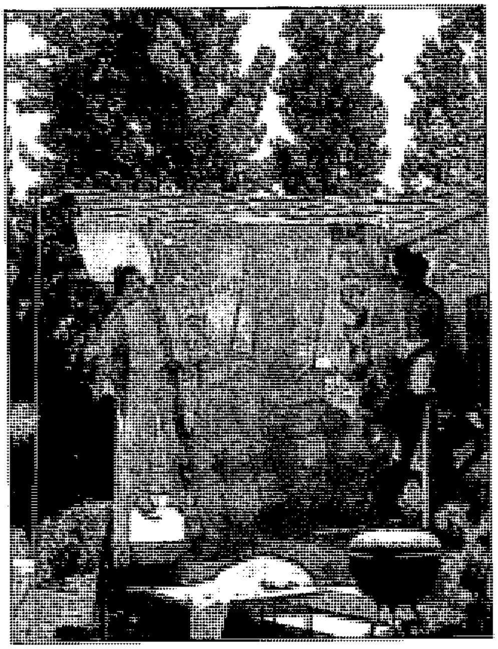
Paul Jobs with Steve, 1956



The Los Altos house with the garage where Apple was born



In the Homestead High yearbook, 1972



With the "SWAB JOB" school prank sign

CHAPTER ONE

CHILDHOOD

Abandoned and Chosen

The Adoption

When Paul Jobs was mustered out of the Coast Guard after World War II, he made a wager with his crewmates. They had arrived in San Francisco, where their ship was decommissioned, and Paul bet that he would find himself a wife within two weeks. He was a taut, tattooed engine mechanic, six feet tall, with a passing resemblance to James Dean. But it wasn't his looks that got him a date with Clara Hagopian, a sweet-humored daughter of Armenian immigrants. It was the fact that he and his friends had a car, unlike the group she had originally planned to go out with that evening. Ten days later, in March 1946, Paul got engaged to Clara and won his wager. It would turn out to be a happy marriage, one that lasted until death parted them more than forty years later.

Paul Reinhold Jobs had been raised on a dairy farm in Germantown, Wisconsin. Even though his father was an alcoholic and sometimes abusive, Paul ended up with a gentle and calm disposition under his leathery exterior. After dropping out of high school, he wandered through the Midwest picking up work as a mechanic until, at age nineteen, he joined the Coast Guard, even though he didn't know how to swim. He was deployed on the USS *General M. C. Meigs* and spent much of the war ferrying troops to Italy for General Patton. His talent as a machinist and fireman earned him commendations, but he occasionally found himself in minor trouble and never rose above the rank of seaman.

Clara was born in New Jersey, where her parents had landed after fleeing the Turks in Armenia, and they moved to the Mission District of San Francisco when she was a child. She had a secret that she rarely mentioned to anyone: She had been married before, but her husband had been killed in the war. So when she met Paul Jobs on that first date, she was primed to start a new life.

Like many who lived through the war, they had experienced enough excitement that, when it was over, they desired simply to settle down, raise a family, and lead a less eventful life. They had little money, so they moved to Wisconsin and lived with Paul's parents for a few years, then headed for Indiana, where he got a job as a machinist for International Harvester. His passion was tinkering with old cars, and he made money in his spare time buying, restoring, and selling them. Eventually he quit his day job to become a full-time used car salesman.

Clara, however, loved San Francisco, and in 1952 she convinced her husband to move back there. They got an apartment in the Sunset District facing the Pacific, just south of Golden Gate Park, and he took a job working for a finance company as a "repo man," picking the locks of cars whose owners hadn't paid their loans and repossessing them. He also bought, repaired, and sold some of the cars, making a decent enough living in the process.

There was, however, something missing in their lives. They wanted children, but Clara had suffered an ectopic pregnancy, in which the fertilized egg was implanted in a fallopian tube rather than the uterus, and she had been unable to have any. So by 1955, after nine years of marriage, they were looking to adopt a child.

Like Paul Jobs, Joanne Schieble was from a rural Wisconsin family of German heritage. Her father, Arthur Schieble, had immigrated to the outskirts of Green Bay, where he and his wife owned a mink farm and dabbled successfully in various other businesses, including real estate and photoengraving. He was very strict, especially regarding his daughter's relationships, and he had strongly disapproved of her first love, an artist who was not a Catholic. Thus it was no surprise that he threatened to cut Joanne off completely when, as a graduate student at the University of Wisconsin, she fell in love with Abdulfattah "John" Jandali, a Muslim teaching assistant from Syria.

Jandali was the youngest of nine children in a prominent Syrian family. His father owned oil refineries and multiple other businesses, with large holdings in Damascus and Homs, and at one point pretty much controlled the price of wheat in the region. His mother, he later said, was a "traditional Muslim woman" who was a "conservative, obedient housewife." Like the Schieble family, the Jandalis put a premium on education. Abdulfattah was sent to a Jesuit boarding school, even though he was Muslim, and he got an undergraduate degree at the American University in Beirut before entering the University of Wisconsin to pursue a doctoral degree in political science.

In the summer of 1954, Joanne went with Abdulfattah to Syria. They spent two months in Homs, where she learned from his family to cook Syrian dishes. When they returned to Wisconsin she discovered that she was pregnant. They were both twenty-three, but they decided not to get married. Her father was dying at the time, and he had threatened to disown her if she wed Abdulfattah. Nor was abortion an easy option in a small Catholic community. So in early 1955, Joanne traveled to San Francisco, where she was taken into the care of a kindly doctor who sheltered unwed mothers, delivered their babies, and quietly arranged closed adoptions.

Joanne had one requirement: Her child must be adopted by college graduates. So the doctor arranged for the baby to be placed with a lawyer and his wife. But when a boy was born—on February 24, 1955—the designated couple decided that they wanted a girl and backed out. Thus it was that the boy became the son not of a lawyer but of a high school dropout with a passion for mechanics and his salt-of-the-earth wife who was working as a bookkeeper. Paul and Clara named their new baby Steven Paul Jobs.

When Joanne found out that her baby had been placed with a couple who had not even graduated from high school, she refused to sign the adoption papers. The standoff lasted weeks, even after the baby had settled into the Jobs household. Eventually Joanne relented, with the stipulation that the couple promise—indeed sign a pledge—to fund a savings account to pay for the boy's college education.

There was another reason that Joanne was balky about signing the adoption papers. Her father was about to die, and she planned to marry Jandali soon after. She held out hope, she would later tell family members, sometimes tearing up at the memory, that once they were married, she could get their baby boy back.

Arthur Schieble died in August 1955, after the adoption was finalized. Just after Christmas that year, Joanne and Abdulfattah were married in St. Philip the Apostle Catholic Church in Green Bay. He got his PhD in international politics the next year, and then they had another child, a girl named Mona. After she and Jandali divorced in 1962, Joanne embarked on a dreamy and peripatetic life that her daughter, who grew up to become the acclaimed novelist Mona Simpson, would capture in her book *Anywhere but Here*. Because Steve's adoption had been closed, it would be twenty years before they would all find each other.

Steve Jobs knew from an early age that he was adopted. "My parents were very open with me about that," he recalled. He had a vivid memory of sitting on the lawn of his house, when he was six or seven years old, telling the girl who lived across the street. "So does that mean your real parents didn't want you?" the girl asked. "Lightning bolts went off in my head," according to Jobs. "I remember running into the house, crying. And my parents said, 'No, you have to understand.' They were very serious and looked me straight in the eye. They said, 'We specifically picked you out.' Both of my parents said that and repeated it slowly for me. And they put an emphasis on every word in that sentence."

Abandoned. Chosen. Special. Those concepts became part of who Jobs was and how he regarded himself. His closest friends think that the knowledge that he was given up at birth left some scars. "I think his desire for complete control of whatever he makes derives directly from his personality and the fact that he was abandoned at birth," said one longtime colleague, Del Yocam. "He wants to control his environment, and he sees the product as an extension of himself." Greg Calhoun, who became close to Jobs right after college, saw another effect. "Steve talked to me a lot about being abandoned and the pain that caused," he said. "It made him independent. He followed the beat of a different drummer, and that came from being in a different world than he was born into."

Later in life, when he was the same age his biological father had been when he abandoned him, Jobs would father and abandon a child of his own. (He eventually took responsibility for her.) Chrisann Brennan, the mother of that child, said that being put up for adoption left Jobs "full of broken glass," and it helps to explain some of his behavior. "He who is abandoned is an abandoner," she said. Andy Hertzfeld, who worked with Jobs at Apple in the early 1980s, is among the few who remained close to both Brennan and Jobs. "The key question about Steve is why he can't control himself at times from being so reflexively cruel and harmful to some people," he said. "That goes back to being abandoned at birth. The real underlying problem was the theme of abandonment in Steve's life."

Jobs dismissed this. "There's some notion that because I was abandoned, I worked very hard so I could do well and make my parents wish they had me back, or some such nonsense, but that's ridiculous," he insisted. "Knowing I was adopted may have made me feel more independent, but I have never felt abandoned. I've always felt special. My parents made me feel special." He would later bristle whenever anyone referred to Paul and Clara Jobs as his "adoptive" parents or implied that they were not his "real" parents. "They were my parents 1,000%," he said. When speaking about his biological parents, on the other hand, he was curt: "They were my sperm and egg bank. That's not harsh, it's just the way it was, a sperm bank thing, nothing more."

Silicon Valley

The childhood that Paul and Clara Jobs created for their new son was, in many ways, a stereotype of the late 1950s. When Steve was two they adopted a girl they named Patty, and three years later they moved to a tract house in the suburbs. The finance company where Paul worked as a repo man, CIT, had transferred him down to its Palo Alto office, but he could not afford to live there, so they landed in a subdivision in Mountain View, a less expensive town just to the south.

There Paul tried to pass along his love of mechanics and cars. "Steve, this is your workbench now," he said as he marked off a section of the table in their garage. Jobs remembered being impressed by his father's focus on craftsmanship. "I thought my dad's sense of design was pretty good," he said, "because he knew how to build anything. If we needed a cabinet, he would build it. When he built our fence, he gave me a hammer so I could work with him."

Fifty years later the fence still surrounds the back and side yards of the house in Mountain View. As Jobs showed it off to me, he caressed the stockade panels and recalled a lesson that his father implanted deeply in him. It was important, his father said, to craft the backs of cabinets and fences properly, even though they were hidden. "He loved doing things right. He even cared about the look of the parts you couldn't see."

His father continued to refurbish and resell used cars, and he festooned the garage with pictures of his favorites. He would point out the detailing of the design to his son: the lines, the vents, the chrome, the trim of the seats. After work each day, he would change into his dungarees and retreat to the garage, often with Steve tagging along. "I figured I could get him nailed down with a little mechanical ability, but he really wasn't interested in getting his hands dirty," Paul later recalled. "He never really cared too much about mechanical things."

"I wasn't that into fixing cars," Jobs admitted. "But I was eager to hang out with my dad." Even as he was growing more aware that he had been adopted, he was becoming more attached to his father. One day when he was about eight, he discovered a photograph of his father from his time in the Coast Guard. "He's in the engine room, and he's got his shirt off and looks like James Dean. It was one of those *Oh wow* moments for a kid. *Wow, oooh,* my parents were actually once very young and really good-looking."

Through cars, his father gave Steve his first exposure to electronics. "My dad did not have a deep understanding of electronics, but he'd encountered it a lot in automobiles and other things he would fix. He showed me the rudiments of electronics, and I got very interested in that." Even more interesting were the trips to scavenge for parts. "Every weekend, there'd be a junkyard trip. We'd be looking for a generator, a carburetor, all sorts of components." He remembered watching his father negotiate at the counter. "He was a good bargainer, because he knew better than the guys at the counter what the parts should cost." This helped fulfill the pledge his parents made when he was adopted. "My college fund came from my dad paying $50 for a Ford Falcon or some other beat-up car that didn't run, working on it for a few weeks, and selling it for $250—and not telling the IRS."

The Jobses' house and the others in their neighborhood were built by the real estate developer Joseph Eichler, whose company spawned more than eleven thousand homes in various California subdivisions between 1950 and 1974. Inspired by Frank Lloyd Wright's vision of simple modern homes for the American "everyman," Eichler built inexpensive houses that featured floor-to-ceiling glass walls, open floor plans, exposed post-and-beam construction, concrete slab floors, and lots of sliding glass doors. "Eichler did a great thing," Jobs said on one of our walks around the neighborhood. "His houses were smart and cheap and good. They brought clean design and simple taste to lower-income people. They had awesome little features, like radiant heating in the floors. You put carpet on them, and we had nice toasty floors when we were kids."

Jobs said that his appreciation for Eichler homes instilled in him a passion for making nicely designed products for the mass market. "I love it when you can bring really great design and simple capability to something that doesn't cost much," he said as he pointed out the clean elegance of the houses. "It was the original vision for Apple. That's what we tried to do with the first Mac. That's what we did with the iPod."

Across the street from the Jobs family lived a man who had become successful as a real estate agent. "He wasn't that bright," Jobs recalled, "but he seemed to be making a fortune. So my dad thought, 'I can do that.' He worked so hard, I remember. He took these night classes, passed the license test, and got into real estate. Then the bottom fell out of the market." As a result, the family found itself financially strapped for a year or so while Steve was in elementary school. His mother took a job as a bookkeeper for Varian Associates, a company that made scientific instruments, and they took out a second mortgage. One day his fourth-grade teacher asked him, "What is it you don't understand about the universe?" Jobs replied, "I don't understand why all of a sudden my dad is so broke." He was proud that his father never adopted a servile attitude or slick style that may have made him a better salesman. "You had to suck up to people to sell real estate, and he wasn't good at that and it wasn't in his nature. I admired him for that." Paul Jobs went back to being a mechanic.

His father was calm and gentle, traits that his son later praised more than emulated. He was also resolute. Jobs described one example:

> Nearby was an engineer who was working at Westinghouse. He was a single guy, beatnik type. He had a girlfriend. She would babysit me sometimes. Both my parents worked, so I would come here right after school for a couple of hours. He would get drunk and hit her a couple of times. She came over one night, scared out of her wits, and he came over drunk, and my dad stood him down—saying "She's here, but you're not coming in." He stood right there. We like to think everything was idyllic in the 1950s, but this guy was one of those engineers who had messed-up lives.

What made the neighborhood different from the thousands of other spindly-tree subdivisions across America was that even the ne'er-do-wells tended to be engineers. "When we moved here, there were apricot and plum orchards on all of these corners," Jobs recalled. "But it was beginning to boom because of military investment." He soaked up the history of the valley and developed a yearning to play his own role. Edwin Land of Polaroid later told him about being asked by Eisenhower to help build the U-2 spy plane cameras to see how real the Soviet threat was. The film was dropped in canisters and returned to the NASA Ames Research Center in Sunnyvale, not far from where Jobs lived. "The first computer terminal I ever saw was when my dad brought me to the Ames Center," he said. "I fell totally in love with it."

Other defense contractors sprouted nearby during the 1950s. The Lockheed Missiles and Space Division, which built submarine-launched ballistic missiles, was founded in 1956 next to the NASA Center; by the time Jobs moved to the area four years later, it employed twenty thousand people. A few hundred yards away, Westinghouse built facilities that produced tubes and electrical transformers for the missile systems. "You had all these military companies on the cutting edge," he recalled. "It was mysterious and high-tech and made living here very exciting."

In the wake of the defense industries there arose a booming economy based on technology. Its roots stretched back to 1938, when David Packard and his new wife moved into a house in Palo Alto that had a shed where his friend Bill Hewlett was soon ensconced. The house had a garage—an appendage that would prove both useful and iconic in the valley—in which they tinkered around until they had their first product, an audio oscillator. By the 1950s, Hewlett-Packard was a fast-growing company making technical instruments.

Fortunately there was a place nearby for entrepreneurs who had outgrown their garages. In a move that would help transform the area into the cradle of the tech revolution, Stanford University's dean of engineering, Frederick Terman, created a seven-hundred-acre industrial park on university land for private companies that could commercialize the ideas of his students. Its first tenant was Varian Associates, where Clara Jobs worked. "Terman came up with this great idea that did more than anything to cause the tech industry to grow up here," Jobs said. By the time Jobs was ten, HP had nine thousand employees and was the blue-chip company where every engineer seeking financial stability wanted to work.

The most important technology for the region's growth was, of course, the semiconductor. William Shockley, who had been one of the inventors of the transistor at Bell Labs in New Jersey, moved out to Mountain View and, in 1956, started a company to build transistors using silicon rather than the more expensive germanium that was then commonly used. But Shockley became increasingly erratic and abandoned his silicon transistor project, which led eight of his engineers—most notably Robert Noyce and Gordon Moore—to break away to form Fairchild Semiconductor. That company grew to twelve thousand employees, but it fragmented in 1968, when Noyce lost a power struggle to become CEO. He took Gordon Moore and founded a company that they called Integrated Electronics Corporation, which they soon smartly abbreviated to Intel. Their third employee was Andrew Grove, who later would grow the company by shifting its focus from memory chips to microprocessors. Within a few years there would be more than fifty companies in the area making semiconductors.

The exponential growth of this industry was correlated with the phenomenon famously discovered by Moore, who in 1965 drew a graph of the speed of integrated circuits, based on the number of transistors that could be placed on a chip, and showed that it doubled about every two years, a trajectory that could be expected to continue. This was reaffirmed in 1971, when Intel was able to etch a complete central processing unit onto one chip, the Intel 4004, which was dubbed a "microprocessor." Moore's Law has held generally true to this day, and its reliable projection of performance to price allowed two generations of young entrepreneurs, including Steve Jobs and Bill Gates, to create cost projections for their forward-leaning products.

The chip industry gave the region a new name when Don Hoefler, a columnist for the weekly trade paper *Electronic News*, began a series in January 1971 entitled "Silicon Valley USA." The forty-mile Santa Clara Valley, which stretches from South San Francisco through Palo Alto to San Jose, has as its commercial backbone El Camino Real, the royal road that once connected California's twenty-one mission churches and is now a bustling avenue that connects companies and startups accounting for a third of the venture capital investment in the United States each year. "Growing up, I got inspired by the history of the place," Jobs said. "That made me want to be a part of it."

Like most kids, he became infused with the passions of the grown-ups around him. "Most of the dads in the neighborhood did really neat stuff, like photovoltaics and batteries and radar," Jobs recalled. "I grew up in awe of that stuff and asking people about it." The most important of these neighbors, Larry Lang, lived seven doors away. "He was my model of what an HP engineer was supposed to be: a big ham radio operator, hard-core electronics guy," Jobs recalled. "He would bring me stuff to play with." As we walked up to Lang's old house, Jobs pointed to the driveway. "He took a carbon microphone and a battery and a speaker, and he put it on this driveway. He had me talk into the carbon mike and it amplified out of the speaker." Jobs had been taught by his father that microphones always required an electronic amplifier. "So I raced home, and I told my dad that he was wrong."

"No, it needs an amplifier," his father assured him. When Steve protested otherwise, his father said he was crazy. "It can't work without an amplifier. There's some trick."

"I kept saying no to my dad, telling him he had to see it, and finally he actually walked down with me and saw it. And he said, 'Well I'll be a bat out of hell.' "

Jobs recalled the incident vividly because it was his first realization that his father did not know everything. Then a more disconcerting discovery began to dawn on him: He was smarter than his parents. He had always admired his father's competence and savvy. "He was not an educated man, but I had always thought he was pretty damn smart. He didn't read much, but he could do a lot. Almost everything mechanical, he could figure it out." Yet the carbon microphone incident, Jobs said, began a jarring process of realizing that he was in fact more clever and quick than his parents. "It was a very big moment that's burned into my mind. When I realized that I was smarter than my parents, I felt tremendous shame for having thought that. I will never forget that moment." This discovery, he later told friends, along with the fact that he was adopted, made him feel apart—detached and separate—from both his family and the world.

Another layer of awareness occurred soon after. Not only did he discover that he was brighter than his parents, but he discovered that they knew this. Paul and Clara Jobs were loving parents, and they were willing to adapt their lives to suit a son who was very smart—and also willful. They would go to great lengths to accommodate him. And soon Steve discovered this fact as well. "Both my parents got me. They felt a lot of responsibility once they sensed that I was special. They found ways to keep feeding me stuff and putting me in better schools. They were willing to defer to my needs."

So he grew up not only with a sense of having once been abandoned, but also with a sense that he was special. In his own mind, that was more important in the formation of his personality.

School

Even before Jobs started elementary school, his mother had taught him how to read. This, however, led to some problems once he got to school. "I was kind of bored for the first few years, so I occupied myself by getting into trouble." It also soon became clear that Jobs, by both nature and nurture, was not disposed to accept authority. "I encountered authority of a different kind than I had ever encountered before, and I did not like it. And they really almost got me. They came close to really beating any curiosity out of me."

His school, Monta Loma Elementary, was a series of low-slung 1950s buildings four blocks from his house. He countered his boredom by playing pranks. "I had a good friend named Rick Ferrentino, and we'd get into all sorts of trouble," he recalled. "Like we made little posters announcing 'Bring Your Pet to School Day.' It was crazy, with dogs chasing cats all over, and the teachers were beside themselves." Another time they convinced some kids to tell them the combination numbers for their bike locks. "Then we went outside and switched all of the locks, and nobody could get their bikes. It took them until late that night to straighten things out." When he was in third grade, the pranks became a bit more dangerous. "One time we set off an explosive under the chair of our teacher, Mrs. Thurman. We gave her a nervous twitch."

Not surprisingly, he was sent home two or three times before he finished third grade. By then, however, his father had begun to treat him as special, and in his calm but firm manner he made it clear that he expected the school to do the same. "Look, it's not his fault," Paul Jobs told the teachers, his son recalled. "If you can't keep him interested, it's your fault." His parents never punished him for his transgressions at school. "My father's father was an alcoholic and whipped him with a belt, but I'm not sure if I ever got spanked." Both of his parents, he added, "knew the school was at fault for trying to make me memorize stupid stuff rather than stimulating me." He was already starting to show the admixture of sensitivity and insensitivity, bristliness and detachment, that would mark him for the rest of his life.

When it came time for him to go into fourth grade, the school decided it was best to put Jobs and Ferrentino into separate classes. The teacher for the advanced class was a spunky woman named Imogene Hill, known as "Teddy," and she became, Jobs said, "one of the saints of my life." After watching him for a couple of weeks, she figured that the best way to handle him was to bribe him. "After school one day, she gave me this workbook with math problems in it, and she said, 'I want you to take it home and do this.' And I thought, 'Are you nuts?' And then she pulled out one of these giant lollipops that seemed as big as the world. And she said, 'When you're done with it, if you get it mostly right, I will give you this and five dollars.' And I handed it back within two days." After a few months, he no longer required the bribes. "I just wanted to learn and to please her."

She reciprocated by getting him a hobby kit for grinding a lens and making a camera. "I learned more from her than any other teacher, and if it hadn't been for her I'm sure I would have gone to jail." It reinforced, once again, the idea that he was special. "In my class, it was just me she cared about. She saw something in me."

It was not merely intelligence that she saw. Years later she liked to show off a picture of that year's class on Hawaii Day. Jobs had shown up without the suggested Hawaiian shirt, but in the picture he is front and center wearing one. He had, literally, been able to talk the shirt off another kid's back.

Near the end of fourth grade, Mrs. Hill had Jobs tested. "I scored at the high school sophomore level," he recalled. Now that it was clear, not only to himself and his parents but also to his teachers, that he was intellectually special, the school made the remarkable proposal that he skip two grades and go right into seventh; it would be the easiest way to keep him challenged and stimulated. His parents decided, more sensibly, to have him skip only one grade.

The transition was wrenching. He was a socially awkward loner who found himself with kids a year older. Worse yet, the sixth grade was in a different school, Crittenden Middle. It was only eight blocks from Monta Loma Elementary, but in many ways it was a world apart, located in a neighborhood filled with ethnic gangs. "Fights were a daily occurrence; as were shakedowns in bathrooms," wrote the Silicon Valley journalist Michael S. Malone. "Knives were regularly brought to school as a show of macho." Around the time that Jobs arrived, a group of students were jailed for a gang rape, and the bus of a neighboring school was destroyed after its team beat Crittenden's in a wrestling match.

Jobs was often bullied, and in the middle of seventh grade he gave his parents an ultimatum. "I insisted they put me in a different school," he recalled. Financially this was a tough demand. His parents were barely making ends meet, but by this point there was little doubt that they would eventually bend to his will. "When they resisted, I told them I would just quit going to school if I had to go back to Crittenden. So they researched where the best schools were and scraped together every dime and bought a house for $21,000 in a nicer district."

The move was only three miles to the south, to a former apricot orchard in Los Altos that had been turned into a subdivision of cookie-cutter tract homes. Their house, at 2066 Crist Drive, was one story with three bedrooms and an all-important attached garage with a roll-down door facing the street. There Paul Jobs could tinker with cars and his son with electronics.

Its other significant attribute was that it was just over the line inside what was then the Cupertino-Sunnyvale School District, one of the safest and best in the valley. "When I moved here, these corners were still orchards," Jobs pointed out as we walked in front of his old house. "The guy who lived right there taught me how to be a good organic gardener and to compost. He grew everything to perfection. I never had better food in my life. That's when I began to appreciate organic fruits and vegetables."

Even though they were not fervent about their faith, Jobs's parents wanted him to have a religious upbringing, so they took him to the Lutheran church most Sundays. That came to an end when he was thirteen. In July 1968 *Life* magazine published a shocking cover showing a pair of starving children in Biafra. Jobs took it to Sunday school and confronted the church's pastor. "If I raise my finger, will God know which one I'm going to raise even before I do it?"

The pastor answered, "Yes, God knows everything."

Jobs then pulled out the *Life* cover and asked, "Well, does God know about this and what's going to happen to those children?"

"Steve, I know you don't understand, but yes, God knows about that."

Jobs announced that he didn't want to have anything to do with worshipping such a God, and he never went back to church. He did, however, spend years studying and trying to practice the tenets of Zen Buddhism. Reflecting years later on his spiritual feelings, he said that religion was at its best when it emphasized spiritual experiences rather than received dogma. "The juice goes out of Christianity when it becomes too based on faith rather than on living like Jesus or seeing the world as Jesus saw it," he told me. "I think different religions are different doors to the same house. Sometimes I think the house exists, and sometimes I don't. It's the great mystery."

Paul Jobs was then working at Spectra-Physics, a company in nearby Santa Clara that made lasers for electronics and medical products. As a machinist, he crafted the prototypes of products that the engineers were devising. His son was fascinated by the need for perfection. "Lasers require precision alignment," Jobs said. "The really sophisticated ones, for airborne applications or medical, had very precise features. They would tell my dad something like, 'This is what we want, and we want it out of one piece of metal so that the coefficients of expansion are all the same.' And he had to figure out how to do it." Most pieces had to be made from scratch, which meant that Paul had to create custom tools and dies. His son was impressed, but he rarely went to the machine shop. "It would have been fun if he had gotten to teach me how to use a mill and lathe. But unfortunately I never went, because I was more interested in electronics."

One summer Paul took Steve to Wisconsin to visit the family's dairy farm. Rural life did not appeal to Steve, but one image stuck with him. He saw a calf being born, and he was amazed when the tiny animal struggled up within minutes and began to walk. "It was not something she had learned, but it was instead hardwired into her," he recalled. "A human baby couldn't do that. I found it remarkable, even though no one else did." He put it in hardware-software terms: "It was as if something in the animal's body and in its brain had been engineered to work together instantly rather than being learned."

In ninth grade Jobs went to Homestead High, which had a sprawling campus of two-story cinderblock buildings painted pink that served two thousand students. "It was designed by a famous prison architect," Jobs recalled. "They wanted to make it indestructible." He had developed a love of walking, and he walked the fifteen blocks to school by himself each day.

He had few friends his own age, but he got to know some seniors who were immersed in the counterculture of the late 1960s. It was a time when the geek and hippie worlds were beginning to show some overlap. "My friends were the really smart kids," he said. "I was interested in math and science and electronics. They were too, and also into LSD and the whole counterculture trip."

His pranks by then typically involved electronics. At one point he wired his house with speakers. But since speakers can also be used as microphones, he built a control room in his closet, where he could listen in on what was happening in other rooms. One night, when he had his headphones on and was listening in on his parents' bedroom, his father caught him and angrily demanded that he dismantle the system. He spent many evenings visiting the garage of Larry Lang, the engineer who lived down the street from his old house. Lang eventually gave Jobs the carbon microphone that had fascinated him, and he turned him on to Heathkits, those assemble-it-yourself kits for making ham radios and other electronic gear that were beloved by the soldering set back then. "Heathkits came with all the boards and parts color-coded, but the manual also explained the theory of how it operated," Jobs recalled. "It made you realize you could build and understand anything. Once you built a couple of radios, you'd see a TV in the catalogue and say, 'I can build that as well,' even if you didn't. I was very lucky, because when I was a kid both my dad and the Heathkits made me believe I could build anything."

Lang also got him into the Hewlett-Packard Explorers Club, a group of fifteen or so students who met in the company cafeteria on Tuesday nights. "They would get an engineer from one of the labs to come and talk about what he was working on," Jobs recalled. "My dad would drive me there. I was in heaven. HP was a pioneer of light-emitting diodes. So we talked about what to do with them." Because his father now worked for a laser company, that topic particularly interested him. One night he cornered one of HP's laser engineers after a talk and got a tour of the holography lab. But the most lasting impression came from seeing the small computers the company was developing. "I saw my first desktop computer there. It was called the 9100A, and it was a glorified calculator but also really the first desktop computer. It was huge, maybe forty pounds, but it was a beauty of a thing. I fell in love with it."

The kids in the Explorers Club were encouraged to do projects, and Jobs decided to build a frequency counter, which measures the number of pulses per second in an electronic signal. He needed some parts that HP made, so he picked up the phone and called the CEO. "Back then, people didn't have unlisted numbers. So I looked up Bill Hewlett in Palo Alto and called him at home. And he answered and chatted with me for twenty minutes. He got me the parts, but he also got me a job in the plant where they made frequency counters." Jobs worked there the summer after his freshman year at Homestead High. "My dad would drive me in the morning and pick me up in the evening."

His work mainly consisted of "just putting nuts and bolts on things" on an assembly line. There was some resentment among his fellow line workers toward the pushy kid who had talked his way in by calling the CEO. "I remember telling one of the supervisors, 'I love this stuff, I love this stuff,' and then I asked him what he liked to do best. And he said, 'To fuck, to fuck.' " Jobs had an easier time ingratiating himself with the engineers who worked one floor above. "They served doughnuts and coffee every morning at ten. So I'd go upstairs and hang out with them."

Jobs liked to work. He also had a newspaper route—his father would drive him when it was raining—and during his sophomore year spent weekends and the summer as a stock clerk at a cavernous electronics store, Haltek. It was to electronics what his father's junkyards were to auto parts: a scavenger's paradise sprawling over an entire city block with new, used, salvaged, and surplus components crammed onto warrens of shelves, dumped unsorted into bins, and piled in an outdoor yard. "Out in the back, near the bay, they had a fenced-in area with things like Polaris submarine interiors that had been ripped and sold for salvage," he recalled. "All the controls and buttons were right there. The colors were military greens and grays, but they had these switches and bulb covers of amber and red. There were these big old lever switches that, when you flipped them, it was awesome, like you were blowing up Chicago."

At the wooden counters up front, laden with thick catalogues in tattered binders, people would haggle for switches, resistors, capacitors, and sometimes the latest memory chips. His father used to do that for auto parts, and he succeeded because he knew the value of each better than the clerks. Jobs followed suit. He developed a knowledge of electronic parts that was honed by his love of negotiating and turning a profit. He would go to electronic flea markets, such as the San Jose swap meet, haggle for a used circuit board that contained some valuable chips or components, and then sell those to his manager at Haltek.

Jobs was able to get his first car, with his father's help, when he was fifteen. It was a two-tone Nash Metropolitan that his father had fitted out with an MG engine. Jobs didn't really like it, but he did not want to tell his father that, or miss out on the chance to have his own car. "In retrospect, a Nash Metropolitan might seem like the most wickedly cool car," he later said. "But at the time it was the most uncool car in the world. Still, it was a car, so that was great." Within a year he had saved up enough from his various jobs that he could trade up to a red Fiat 850 coupe with an Abarth engine. "My dad helped me buy and inspect it. The satisfaction of getting paid and saving up for something, that was very exciting."

That same summer, between his sophomore and junior years at Homestead, Jobs began smoking marijuana. "I got stoned for the first time that summer. I was fifteen, and then began using pot regularly." At one point his father found some dope in his son's Fiat. "What's this?" he asked. Jobs coolly replied, "That's marijuana." It was one of the few times in his life that he faced his father's anger. "That was the only real fight I ever got in with my dad," he said. But his father again bent to his will. "He wanted me to promise that I'd never use pot again, but I wouldn't promise." In fact by his senior year he was also dabbling in LSD and hash as well as exploring the mind-bending effects of sleep deprivation. "I was starting to get stoned a bit more. We would also drop acid occasionally, usually in fields or in cars."

He also flowered intellectually during his last two years in high school and found himself at the intersection, as he had begun to see it, of those who were geekily immersed in electronics and those who were into literature and creative endeavors. "I started to listen to music a whole lot, and I started to read more outside of just science and technology—Shakespeare, Plato. I loved *King Lear*." His other favorites included *Moby-Dick* and the poems of Dylan Thomas. I asked him why he related to King Lear and Captain Ahab, two of the most willful and driven characters in literature, but he didn't respond to the connection I was making, so I let it drop. "When I was a senior I had this phenomenal AP English class. The teacher was this guy who looked like Ernest Hemingway. He took a bunch of us snowshoeing in Yosemite."

One course that Jobs took would become part of Silicon Valley lore: the electronics class taught by John McCollum, a former Navy pilot who had a showman's flair for exciting his students with such tricks as firing up a Tesla coil. His little stockroom, to which he would lend the key to pet students, was crammed with transistors and other components he had scored.

McCollum's classroom was in a shed-like building on the edge of the campus, next to the parking lot. "This is where it was," Jobs recalled as he peered in the window, "and here, next door, is where the auto shop class used to be." The juxtaposition highlighted the shift from the interests of his father's generation. "Mr. McCollum felt that electronics class was the new auto shop."

McCollum believed in military discipline and respect for authority. Jobs didn't. His aversion to authority was something he no longer tried to hide, and he affected an attitude that combined wiry and weird intensity with aloof rebelliousness. McCollum later said, "He was usually off in a corner doing something on his own and really didn't want to have much of anything to do with either me or the rest of the class." He never trusted Jobs with a key to the stockroom. One day Jobs needed a part that was not available, so he made a collect call to the manufacturer, Burroughs in Detroit, and said he was designing a new product and wanted to test out the part. It arrived by air freight a few days later. When McCollum asked how he had gotten it, Jobs described—with defiant pride—the collect call and the tale he had told. "I was furious," McCollum said. "That was not the way I wanted my students to behave." Jobs's response was, "I don't have the money for the phone call. They've got plenty of money."

Jobs took McCollum's class for only one year, rather than the three that it was offered. For one of his projects, he made a device with a photocell that would switch on a circuit when exposed to light, something any high school science student could have done. He was far more interested in playing with lasers, something he learned from his father. With a few friends, he created light shows for parties by bouncing lasers off mirrors that were attached to the speakers of his stereo system.

CHAPTER TWO

ODD COUPLE

The Two Steves

Jobs and Wozniak in the garage, 1976

Woz

While a student in McCollum's class, Jobs became friends with a graduate who was the teacher's all-time favorite and a school legend for his wizardry in the class. Stephen Wozniak, whose younger brother had been on a swim team with Jobs, was almost five years older than Jobs and far more knowledgeable about electronics. But emotionally and socially he was still a high school geek.

Like Jobs, Wozniak learned a lot at his father's knee. But their lessons were different. Paul Jobs was a high school dropout who, when fixing up cars, knew how to turn a tidy profit by striking the right deal on parts. Francis Wozniak, known as Jerry, was a brilliant engineering graduate from Cal Tech, where he had quarterbacked the football team, who became a rocket scientist at Lockheed. He exalted engineering and looked down on those in business, marketing, and sales. "I remember him telling me that engineering was the highest level of importance you could reach in the world," Steve Wozniak later recalled. "It takes society to a new level."

One of Steve Wozniak's first memories was going to his father's workplace on a weekend and being shown electronic parts, with his dad "putting them on a table with me so I got to play with them." He watched with fascination as his father tried to get a waveform line on a video screen to stay flat so he could show that one of his circuit designs was working properly. "I could see that whatever my dad was doing, it was important and good." Woz, as he was known even then, would ask about the resistors and transistors lying around the house, and his father would pull out a blackboard to illustrate what they did. "He would explain what a resistor was by going all the way back to atoms and electrons. He explained how resistors worked when I was in second grade, not by equations but by having me picture it."

Woz's father taught him something else that became ingrained in his childlike, socially awkward personality: Never lie. "My dad believed in honesty. Extreme honesty. That's the biggest thing he taught me. I never lie, even to this day." (The only partial exception was in the service of a good practical joke.) In addition, he imbued his son with an aversion to extreme ambition, which set Woz apart from Jobs. At an Apple product launch event in 2010, forty years after they met, Woz reflected on their differences. "My father told me, 'You always want to be in the middle,' " he said. "I didn't want to be up with the high-level people like Steve. My dad was an engineer, and that's what I wanted to be. I was way too shy ever to be a business leader like Steve."

By fourth grade Wozniak became, as he put it, one of the "electronics kids." He had an easier time making eye contact with a transistor than with a girl, and he developed the chunky and stooped look of a guy who spends most of his time hunched over circuit boards. At the same age when Jobs was puzzling over a carbon microphone that his dad couldn't explain, Wozniak was using transistors to build an intercom system featuring amplifiers, relays, lights, and buzzers that connected the kids' bedrooms of six houses in the neighborhood. And at an age when Jobs was building Heathkits, Wozniak was assembling a transmitter and receiver from Hallicrafters, the most sophisticated radios available.

Woz spent a lot of time at home reading his father's electronics journals, and he became enthralled by stories about new computers, such as the powerful ENIAC. Because Boolean algebra came naturally to him, he marveled at how simple, rather than complex, the computers were. In eighth grade he built a calculator that included one hundred transistors, two hundred diodes, and two hundred resistors on ten circuit boards. It won top prize in a local contest run by the Air Force, even though the competitors included students through twelfth grade.

Woz became more of a loner when the boys his age began going out with girls and partying, endeavors that he found far more complex than designing circuits. "Where before I was popular and riding bikes and everything, suddenly I was socially shut out," he recalled. "It seemed like nobody spoke to me for the longest time." He found an outlet by playing juvenile pranks. In twelfth grade he built an electronic metronome—one of those tick-tick-tick devices that keep time in music class—and realized it sounded like a bomb. So he took the labels off some big batteries, taped them together, and put it in a school locker; he rigged it to start ticking faster when the locker opened. Later that day he got called to the principal's office. He thought it was because he had won, yet again, the school's top math prize. Instead he was confronted by the police. The principal had been summoned when the device was found, bravely ran onto the football field clutching it to his chest, and pulled the wires off. Woz tried and failed to suppress his laughter. He actually got sent to the juvenile detention center, where he spent the night. It was a memorable experience. He taught the other prisoners how to disconnect the wires leading to the ceiling fans and connect them to the bars so people got shocked when touching them.

Getting shocked was a badge of honor for Woz. He prided himself on being a hardware engineer, which meant that random shocks were routine. He once devised a roulette game where four people put their thumbs in a slot; when the ball landed, one would get shocked. "Hardware guys will play this game, but software guys are too chicken," he noted.

During his senior year he got a part-time job at Sylvania and had the chance to work on a computer for the first time. He learned FORTRAN from a book and read the manuals for most of the systems of the day, starting with the Digital Equipment PDP-8. Then he studied the specs for the latest microchips and tried to redesign the computers using these newer parts. The challenge he set himself was to replicate the design using the fewest components possible. Each night he would try to improve his drawing from the night before. By the end of his senior year, he had become a master. "I was now designing computers with half the number of chips the actual company had in their own design, but only on paper." He never told his friends. After all, most seventeen-year-olds were getting their kicks in other ways.

On Thanksgiving weekend of his senior year, Wozniak visited the University of Colorado. It was closed for the holiday, but he found an engineering student who took him on a tour of the labs. He begged his father to let him go there, even though the out-of-state tuition was more than the family could easily afford. They struck a deal: He would be allowed to go for one year, but then he would transfer to De Anza Community College back home. After arriving at Colorado in the fall of 1969, he spent so much time playing pranks (such as producing reams of printouts saying "Fuck Nixon") that he failed a couple of his courses and was put on probation. In addition, he created a program to calculate Fibonacci numbers that burned up so much computer time the university threatened to bill him for the cost. So he readily lived up to his bargain with his parents and transferred to De Anza.

After a pleasant year at De Anza, Wozniak took time off to make some money. He found work at a company that made computers for the California Motor Vehicle Department, and a coworker made him a wonderful offer: He would provide some spare chips so Wozniak could make one of the computers he had been sketching on paper. Wozniak decided to use as few chips as possible, both as a personal challenge and because he did not want to take advantage of his colleague's largesse.

Much of the work was done in the garage of a friend just around the corner, Bill Fernandez, who was still at Homestead High. To lubricate their efforts, they drank large amounts of Cragmont cream soda, riding their bikes to the Sunnyvale Safeway to return the bottles, collect the deposits, and buy more. "That's how we started referring to it as the Cream Soda Computer," Wozniak recalled. It was basically a calculator capable of multiplying numbers entered by a set of switches and displaying the results in binary code with little lights.

When it was finished, Fernandez told Wozniak there was someone at Homestead High he should meet. "His name is Steve. He likes to do pranks like you do, and he's also into building electronics like you are." It may have been the most significant meeting in a Silicon Valley garage since Hewlett went into Packard's thirty-two years earlier. "Steve and I just sat on the sidewalk in front of Bill's house for the longest time, just sharing stories—mostly about pranks we'd pulled, and also what kind of electronic designs we'd done," Wozniak recalled. "We had so much in common. Typically, it was really hard for me to explain to people what kind of design stuff I worked on, but Steve got it right away. And I liked him. He was kind of skinny and wiry and full of energy." Jobs was also impressed. "Woz was the first person I'd met who knew more electronics than I did," he once said, stretching his own expertise. "I liked him right away. I was a little more mature than my years, and he was a little less mature than his, so it evened out. Woz was very bright, but emotionally he was my age."

In addition to their interest in computers, they shared a passion for music. "It was an incredible time for music," Jobs recalled. "It was like living at a time when Beethoven and Mozart were alive. Really. People will look back on it that way. And Woz and I were deeply into it." In particular, Wozniak turned Jobs on to the glories of Bob Dylan. "We tracked down this guy in Santa Cruz who put out this newsletter on Dylan," Jobs said. "Dylan taped all of his concerts, and some of the people around him were not scrupulous, because soon there were tapes all around. Bootlegs of everything. And this guy had them all."

Hunting down Dylan tapes soon became a joint venture. "The two of us would go tramping through San Jose and Berkeley and ask about Dylan bootlegs and collect them," said Wozniak. "We'd buy brochures of Dylan lyrics and stay up late interpreting them. Dylan's words struck chords of creative thinking." Added Jobs, "I had more than a hundred hours, including every concert on the '65 and '66 tour," the one where Dylan went electric. Both of them bought high-end TEAC reel-to-reel tape decks. "I would use mine at a low speed to record many concerts on one tape," said Wozniak. Jobs matched his obsession: "Instead of big speakers I bought a pair of awesome headphones and would just lie in my bed and listen to that stuff for hours."

Jobs had formed a club at Homestead High to put on music-and-light shows and also play pranks. (They once glued a gold-painted toilet seat onto a flower planter.) It was called the Buck Fry Club, a play on the name of the principal. Even though they had already graduated, Wozniak and his friend Allen Baum joined forces with Jobs, at the end of his junior year, to produce a farewell gesture for the departing seniors. Showing off the Homestead campus four decades later, Jobs paused at the scene of the escapade and pointed. "See that balcony? That's where we did the banner prank that sealed our friendship." On a big bedsheet Baum had tie-dyed with the school's green and white colors, they painted a huge hand flipping the middle-finger salute. Baum's nice Jewish mother helped them draw it and showed them how to do the shading and shadows to make it look more real. "I know what that is," she snickered. They devised a system of ropes and pulleys so that it could be dramatically lowered as the graduating class marched past the balcony, and they signed it "SWAB JOB," the initials of Wozniak and Baum combined with part of Jobs's name. The prank became part of school lore—and got Jobs suspended one more time.

Another prank involved a pocket device Wozniak built that could emit TV signals. He would take it to a room where a group of people were watching TV, such as in a dorm, and secretly press the button so that the screen would get fuzzy with static. When someone got up and whacked the set, Wozniak would let go of the button and the picture would clear up. Once he had the unsuspecting viewers hopping up and down at his will, he would make things harder. He would keep the picture fuzzy until someone touched the antenna. Eventually he would make people think they had to hold the antenna while standing on one foot or touching the top of the set. Years later, at a keynote presentation where he was having his own trouble getting a video to work, Jobs broke from his script and recounted the fun they had with the device. "Woz would have it in his pocket and we'd go into a dorm . . . where a bunch of folks would be, like, watching *Star Trek*, and he'd screw up the TV, and someone would go up to fix it, and just as they had the foot off the ground he would turn it back on, and as they put their foot back on the ground he'd screw it up again." Contorting himself into a pretzel onstage, Jobs concluded to great laughter, "And within five minutes he would have someone like this."

The Blue Box

The ultimate combination of pranks and electronics—and the escapade that helped to create Apple—was launched one Sunday afternoon when Wozniak read an article in *Esquire* that his mother had left for him on the kitchen table. It was September 1971, and he was about to drive off the next day to Berkeley, his third college. The story, Ron Rosenbaum's "Secrets of the Little Blue Box," described how hackers and phone phreakers had found ways to make long-distance calls for free by replicating the tones that routed signals on the AT&T network. "Halfway through the article, I had to call my best friend, Steve Jobs, and read parts of this long article to him," Wozniak recalled. He knew that Jobs, then beginning his senior year, was one of the few people who would share his excitement.

A hero of the piece was John Draper, a hacker known as Captain Crunch because he had discovered that the sound emitted by the toy whistle that came with the breakfast cereal was the same 2600 Hertz tone used by the phone network's call-routing switches. It could fool the system into allowing a long-distance call to go through without extra charges. The article revealed that other tones that served to route calls could be found in an issue of the *Bell System Technical Journal*, which AT&T immediately began asking libraries to pull from their shelves.

As soon as Jobs got the call from Wozniak that Sunday afternoon, he knew they would have to get their hands on the technical journal right away. "Woz picked me up a few minutes later, and we went to the library at SLAC [the Stanford Linear Accelerator Center] to see if we could find it," Jobs recounted. It was Sunday and the library was closed, but they knew how to get in through a door that was rarely locked. "I remember that we were furiously digging through the stacks, and it was Woz who finally found the journal with all the frequencies. It was like, holy shit, and we opened it and there it was. We kept saying to ourselves, 'It's real. Holy shit, it's real.' It was all laid out—the tones, the frequencies."

Wozniak went to Sunnyvale Electronics before it closed that evening and bought the parts to make an analog tone generator. Jobs had built a frequency counter when he was part of the HP Explorers Club, and they used it to calibrate the desired tones. With a dial, they could replicate and tape-record the sounds specified in the article. By midnight they were ready to test it. Unfortunately the oscillators they used were not quite stable enough to replicate the right chirps to fool the phone company. "We could see the instability using Steve's frequency counter," recalled Wozniak, "and we just couldn't make it work. I had to leave for Berkeley the next morning, so we decided I would work on building a digital version once I got there."

No one had ever created a digital version of a Blue Box, but Woz was made for the challenge. Using diodes and transistors from Radio Shack, and with the help of a music student in his dorm who had perfect pitch, he got it built before Thanksgiving. "I have never designed a circuit I was prouder of," he said. "I still think it was incredible."

One night Wozniak drove down from Berkeley to Jobs's house to try it. They attempted to call Wozniak's uncle in Los Angeles, but they got a wrong number. It didn't matter; their device had worked. "Hi! We're calling you for free! We're calling you for free!" Wozniak shouted. The person on the other end was confused and annoyed. Jobs chimed in, "We're calling from California! From California! With a Blue Box." This probably baffled the man even more, since he was also in California.

At first the Blue Box was used for fun and pranks. The most daring of these was when they called the Vatican and Wozniak pretended to be Henry Kissinger wanting to speak to the pope. "Ve are at de summit meeting in Moscow, and ve need to talk to de pope," Woz intoned.

He was told that it was 5:30 a.m. and the pope was sleeping. When he called back, he got a bishop who was supposed to serve as the translator. But they never actually got the pope on the line. "They realized that Woz wasn't Henry Kissinger," Jobs recalled. "We were at a public phone booth."

It was then that they reached an important milestone, one that would establish a pattern in their partnerships: Jobs came up with the idea that the Blue Box could be more than merely a hobby; they could build and sell them. "I got together the rest of the components, like the casing and power supply and keypads, and figured out how we could price it," Jobs said, foreshadowing roles he would play when they founded Apple. The finished product was about the size of two decks of playing cards. The parts cost about $40, and Jobs decided they should sell it for $150.

Following the lead of other phone phreaks such as Captain Crunch, they gave themselves handles. Wozniak became "Berkeley Blue," Jobs was "Oaf Tobark." They took the device to college dorms and gave demonstrations by attaching it to a phone and speaker. While the potential customers watched, they would call the Ritz in London or a dial-a-joke service in Australia. "We made a hundred or so Blue Boxes and sold almost all of them," Jobs recalled.

The fun and profits came to an end at a Sunnyvale pizza parlor. Jobs and Wozniak were about to drive to Berkeley with a Blue Box they had just finished making. Jobs needed money and was eager to sell, so he pitched the device to some guys at the next table. They were interested, so Jobs went to a phone booth and demonstrated it with a call to Chicago. The prospects said they had to go to their car for money. "So we walk over to the car, Woz and me, and I've got the Blue Box in my hand, and the guy gets in, reaches under the seat, and he pulls out a gun," Jobs recounted. He had never been that close to a gun, and he was terrified. "So he's pointing the gun right at my stomach, and he says, 'Hand it over, brother.' My mind raced. There was the car door here, and I thought maybe I could slam it on his legs and we could run, but there was this high probability that he would shoot me. So I slowly handed it to him, very carefully." It was a weird sort of robbery. The guy who took the Blue Box actually gave Jobs a phone number and said he would try to pay for it if it worked. When Jobs later called the number, the guy said he couldn't figure out how to use it. So Jobs, in his felicitous way, convinced the guy to meet him and Wozniak at a public place. But they ended up deciding not to have another encounter with the gunman, even on the off chance they could get their $150.

The partnership paved the way for what would be a bigger adventure together. "If it hadn't been for the Blue Boxes, there wouldn't have been an Apple," Jobs later reflected. "I'm 100% sure of that. Woz and I learned how to work together, and we gained the confidence that we could solve technical problems and actually put something into production." They had created a device with a little circuit board that could control billions of dollars' worth of infrastructure. "You cannot believe how much confidence that gave us." Woz came to the same conclusion: "It was probably a bad idea selling them, but it gave us a taste of what we could do with my engineering skills and his vision." The Blue Box adventure established a template for a partnership that would soon be born. Wozniak would be the gentle wizard coming up with a neat invention that he would have been happy just to give away, and Jobs would figure out how to make it user-friendly, put it together in a package, market it, and make a few bucks.

CHAPTER THREE

THE DROPOUT

Turn On, Tune In . . .

Chrisann Brennan

Toward the end of his senior year at Homestead, in the spring of 1972, Jobs started going out with a girl named Chrisann Brennan, who was about his age but still a junior. With her light brown hair, green eyes, high cheekbones, and fragile aura, she was very attractive. She was also enduring the breakup of her parents' marriage, which made her vulnerable. "We worked together on an animated movie, then started going out, and she became my first real girlfriend," Jobs recalled. As Brennan later said, "Steve was kind of crazy. That's why I was attracted to him."

Jobs's craziness was of the cultivated sort. He had begun his lifelong experiments with compulsive diets, eating only fruits and vegetables, so he was as lean and tight as a whippet. He learned to stare at people without blinking, and he perfected long silences punctuated by staccato bursts of fast talking. This odd mix of intensity and aloofness, combined with his shoulder-length hair and scraggly beard, gave him the aura of a crazed shaman. He oscillated between charismatic and creepy. "He shuffled around and looked half-mad," recalled Brennan. "He had a lot of angst. It was like a big darkness around him."

Jobs had begun to drop acid by then, and he turned Brennan on to it as well, in a wheat field just outside Sunnyvale. "It was great," he recalled. "I had been listening to a lot of Bach. All of a sudden the wheat field was playing Bach. It was the most wonderful feeling of my life up to that point. I felt like the conductor of this symphony with Bach coming through the wheat."

That summer of 1972, after his graduation, he and Brennan moved to a cabin in the hills above Los Altos. "I'm going to go live in a cabin with Chrisann," he announced to his parents one day. His father was furious. "No you're not," he said. "Over my dead body." They had recently fought about marijuana, and once again the younger Jobs was willful. He just said good-bye and walked out.

Brennan spent a lot of her time that summer painting; she was talented, and she did a picture of a clown for Jobs that he kept on the wall. Jobs wrote poetry and played guitar. He could be brutally cold and rude to her at times, but he was also entrancing and able to impose his will. "He was an enlightened being who was cruel," she recalled. "That's a strange combination."

Midway through the summer, Jobs was almost killed when his red Fiat caught fire. He was driving on Skyline Boulevard in the Santa Cruz Mountains with a high school friend, Tim Brown, who looked back, saw flames coming from the engine, and casually said to Jobs, "Pull over, your car is on fire." Jobs did. His father, despite their arguments, drove out to the hills to tow the Fiat home.

In order to find a way to make money for a new car, Jobs got Wozniak to drive him to De Anza College to look on the help-wanted bulletin board. They discovered that the Westgate Shopping Center in San Jose was seeking college students who could dress up in costumes and amuse the kids. So for $3 an hour, Jobs, Wozniak, and Brennan donned heavy full-body costumes and headgear to play Alice in Wonderland, the Mad Hatter, and the White Rabbit. Wozniak, in his earnest and sweet way, found it fun. "I said, 'I want to do it, it's my chance, because I love children.' I think Steve looked at it as a lousy job, but I looked at it as a fun adventure." Jobs did indeed find it a pain. "It was hot, the costumes were heavy, and after a while I felt like I wanted to smack some of the kids." Patience was never one of his virtues.

Reed College

Seventeen years earlier, Jobs's parents had made a pledge when they adopted him: He would go to college. So they had worked hard and saved dutifully for his college fund, which was modest but adequate by the time he graduated. But Jobs, becoming ever more willful, did not make it easy. At first he toyed with not going to college at all. "I think I might have headed to New York if I didn't go to college," he recalled, musing on how different his world—and perhaps all of ours—might have been if he had chosen that path. When his parents pushed him to go to college, he responded in a passive-aggressive way. He did not consider state schools, such as Berkeley, where Woz then was, despite the fact that they were more affordable. Nor did he look at Stanford, just up the road and likely to offer a scholarship. "The kids who went to Stanford, they already knew what they wanted to do," he said. "They weren't really artistic. I wanted something that was more artistic and interesting."

Instead he insisted on applying only to Reed College, a private liberal arts school in Portland, Oregon, that was one of the most expensive in the nation. He was visiting Woz at Berkeley when his father called to say an acceptance letter had arrived from Reed, and he tried to talk Steve out of going there. So did his mother. It was far more than they could afford, they said. But their son responded with an ultimatum: If he couldn't go to Reed, he wouldn't go anywhere. They relented, as usual.

Reed had only one thousand students, half the number at Homestead High. It was known for its free-spirited hippie lifestyle, which combined somewhat uneasily with its rigorous academic standards and core curriculum. Five years earlier Timothy Leary, the guru of psychedelic enlightenment, had sat cross-legged at the Reed College commons while on his League for Spiritual Discovery (LSD) college tour, during which he exhorted his listeners, "Like every great religion of the past we seek to find the divinity within. . . . These ancient goals we define in the metaphor of the present—turn on, tune in, drop out."

Many of Reed's students took all three of those injunctions seriously; the dropout rate during the 1970s was more than one-third.

When it came time for Jobs to matriculate in the fall of 1972, his parents drove him up to Portland, but in another small act of rebellion he refused to let them come on campus. In fact he refrained from even saying good-bye or thanks. He recounted the moment later with uncharacteristic regret:

> It's one of the things in life I really feel ashamed about. I was not very sensitive, and I hurt their feelings. I shouldn't have. They had done so much to make sure I could go there, but I just didn't want them around. I didn't want anyone to know I had parents. I wanted to be like an orphan who had bummed around the country on trains and just arrived out of nowhere, with no roots, no connections, no background.

In late 1972, there was a fundamental shift happening in American campus life. The nation's involvement in the Vietnam War, and the draft that accompanied it, was winding down. Political activism at colleges receded and in many late-night dorm conversations was replaced by an interest in pathways to personal fulfillment. Jobs found himself deeply influenced by a variety of books on spirituality and enlightenment, most notably *Be Here Now,* a guide to meditation and the wonders of psychedelic drugs by Baba Ram Dass, born Richard Alpert. "It was profound," Jobs said. "It transformed me and many of my friends."

The closest of those friends was another wispy-bearded freshman named Daniel Kottke, who met Jobs a week after they arrived at Reed and shared his interest in Zen, Dylan, and acid. Kottke, from a wealthy New York suburb, was smart but low-octane, with a sweet flower-child demeanor made even mellower by his interest in Buddhism. That spiritual quest had caused him to eschew material possessions, but he was nonetheless impressed by Jobs's tape deck. "Steve had a TEAC reel-to-reel and massive quantities of Dylan bootlegs," Kottke recalled. "He was both really cool and high-tech."

Jobs started spending much of his time with Kottke and his girlfriend, Elizabeth Holmes, even after he insulted her at their first meeting by grilling her about how much money it would take to get her to have sex with another man. They hitchhiked to the coast together, engaged in the typical dorm raps about the meaning of life, attended the love festivals at the local Hare Krishna temple, and went to the Zen center for free vegetarian meals. "It was a lot of fun," said Kottke, "but also philosophical, and we took Zen very seriously."

Jobs began sharing with Kottke other books, including *Zen Mind, Beginner's Mind* by Shunryu Suzuki, *Autobiography of a Yogi* by Paramahansa Yogananda, and *Cutting Through Spiritual Materialism* by Chögyam Trungpa. They created a meditation room in the attic crawl space above Elizabeth Holmes's room and fixed it up with Indian prints, a dhurrie rug, candles, incense, and meditation cushions. "There was a hatch in the ceiling leading to an attic which had a huge amount of space," Jobs said. "We took psychedelic drugs there sometimes, but mainly we just meditated."

Jobs's engagement with Eastern spirituality, and especially Zen Buddhism, was not just some passing fancy or youthful dabbling. He embraced it with his typical intensity, and it became deeply ingrained in his personality. "Steve is very much Zen," said Kottke. "It was a deep influence. You see it in his whole approach of stark, minimalist aesthetics, intense focus." Jobs also became deeply influenced by the emphasis that Buddhism places on intuition. "I began to realize that an intuitive understanding and consciousness was more significant than abstract thinking and intellectual logical analysis," he later said. His intensity, however, made it difficult for him to achieve inner peace; his Zen awareness was not accompanied by an excess of calm, peace of mind, or interpersonal mellowness.

He and Kottke enjoyed playing a nineteenth-century German variant of chess called Kriegspiel, in which the players sit back-to-back; each has his own board and pieces and cannot see those of his opponent. A moderator informs them if a move they want to make is legal or illegal, and they have to try to figure out where their opponent's pieces are. "The wildest game I played with them was during a lashing rainstorm sitting by the fireside," recalled Holmes, who served as moderator. "They were tripping on acid. They were moving so fast I could barely keep up with them."

Another book that deeply influenced Jobs during his freshman year was *Diet for a Small Planet* by Frances Moore Lappé, which extolled the personal and planetary benefits of vegetarianism. "That's when I swore off meat pretty much for good," he recalled. But the book also reinforced his tendency to embrace extreme diets, which included purges, fasts, or eating only one or two foods, such as carrots or apples, for weeks on end.

Jobs and Kottke became serious vegetarians during their freshman year. "Steve got into it even more than I did," said Kottke. "He was living off Roman Meal cereal." They would go shopping at a farmers' co-op, where Jobs would buy a box of cereal, which would last a week, and other bulk health food. "He would buy flats of dates and almonds and lots of carrots, and he got a Champion juicer and we'd make carrot juice and carrot salads. There is a story about Steve turning orange from eating so many carrots, and there is some truth to that." Friends remember him having, at times, a sunset-like orange hue.

Jobs's dietary habits became even more obsessive when he read *Mucusless Diet Healing System* by Arnold Ehret, an early twentieth-century German-born nutrition fanatic. He believed in eating nothing but fruits and starchless vegetables, which he said prevented the body from forming harmful mucus, and he advocated cleansing the body regularly through prolonged fasts. That meant the end of even Roman Meal cereal—or any bread, grains, or milk. Jobs began warning friends of the mucus dangers lurking in their bagels. "I got into it in my typical nutso way," he said. At one point he and Kottke went for an entire week eating only apples, and then Jobs began to try even purer fasts. He started with two-day fasts, and eventually tried to stretch them to a week or more, breaking them carefully with large amounts of water and leafy vegetables. "After a week you start to feel fantastic," he said. "You get a ton of vitality from not having to digest all this food. I was in great shape. I felt I could get up and walk to San Francisco anytime I wanted."

Vegetarianism and Zen Buddhism, meditation and spirituality, acid and rock—Jobs rolled together, in an amped-up way, the multiple impulses that were hallmarks of the enlightenment-seeking campus subculture of the era. And even though he barely indulged it at Reed, there was still an undercurrent of electronic geekiness in his soul that would someday combine surprisingly well with the rest of the mix.

Robert Friedland

In order to raise some cash one day, Jobs decided to sell his IBM Selectric typewriter. He walked into the room of the student who had offered to buy it only to discover that he was having sex with his girlfriend. Jobs started to leave, but the student invited him to take a seat and wait while they finished. "I thought, 'This is kind of far out,'" Jobs later recalled. And thus began his relationship with Robert Friedland, one of the few people in Jobs's life who were able to mesmerize him. He adopted some of Friedland's charismatic traits and for a few years treated him almost like a guru—until he began to see him as a charlatan.

Friedland was four years older than Jobs, but still an undergraduate. The son of an Auschwitz survivor who became a prosperous Chicago architect, he had originally gone to Bowdoin, a liberal arts college in Maine. But while a sophomore, he was arrested for possession of 24,000 tablets of LSD worth $125,000. The local newspaper pictured him with shoulder-length wavy blond hair smiling at the photographers as he was led away. He was sentenced to two years at a federal prison in Virginia, from which he was paroled in 1972. That fall he headed off to Reed, where he immediately ran for student body president, saying that he needed to clear his name from the "miscarriage of justice" he had suffered. He won.

Friedland had heard Baba Ram Dass, the author of *Be Here Now*, give a speech in Boston, and like Jobs and Kottke had gotten deeply into Eastern spirituality. During the summer of 1973, he traveled to India to meet Ram Dass's Hindu guru, Neem Karoli Baba, famously known to his many followers as Maharaj-ji. When he returned that fall, Friedland had taken a spiritual name and walked around in sandals and flowing Indian robes. He had a room off campus, above a garage, and Jobs would go there many afternoons to seek him out. He was entranced by the apparent intensity of Friedland's conviction that a state of enlightenment truly existed and could be attained. "He turned me on to a different level of consciousness," Jobs said.

Friedland found Jobs fascinating as well. "He was always walking around barefoot," he later told a reporter. "The thing that struck me was his intensity. Whatever he was interested in he would generally carry to an irrational extreme." Jobs had honed his trick of using stares and silences to master other people. "One of his numbers was to stare at the person he was talking to. He would stare into their fucking eyeballs, ask some question, and would want a response without the other person averting their eyes."

According to Kottke, some of Jobs's personality traits—including a few that lasted throughout his career—were borrowed from Friedland. "Friedland taught Steve the reality distortion field," said Kottke. "He was charismatic and a bit of a con man and could bend situations to his very strong will. He was mercurial, sure of himself, a little dictatorial. Steve admired that, and he became more like that after spending time with Robert."

Jobs also absorbed how Friedland made himself the center of attention. "Robert was very much an outgoing, charismatic guy, a real salesman," Kottke recalled. "When I first met Steve he was shy and self-effacing, a very private guy. I think Robert taught him a lot about selling, about coming out of his shell, of opening up and taking charge of a situation." Friedland projected a high-wattage aura. "He would walk into a room and you would instantly notice him. Steve was the absolute opposite when he came to Reed. After he spent time with Robert, some of it started to rub off."

On Sunday evenings Jobs and Friedland would go to the Hare Krishna temple on the western edge of Portland, often with Kottke and Holmes in tow. They would dance and sing songs at the top of their lungs. "We would work ourselves into an ecstatic frenzy," Holmes recalled. "Robert would go insane and dance like crazy. Steve was more subdued, as if he was embarrassed to let loose." Then they would be treated to paper plates piled high with vegetarian food.

Friedland had stewardship of a 220-acre apple farm, about forty miles southwest of Portland, that was owned by an eccentric millionaire uncle from Switzerland named Marcel Müller. After Friedland became involved with Eastern spirituality, he turned it into a commune called the All One Farm, and Jobs would spend weekends there with Kottke, Holmes, and like-minded seekers of enlightenment. The farm had a main house, a large barn, and a garden shed, where Kottke and Holmes slept. Jobs took on the task of pruning the Gravenstein apple trees. "Steve ran the apple orchard," said Friedland. "We were in the organic cider business. Steve's job was to lead a crew of freaks to prune the orchard and whip it back into shape."

Monks and disciples from the Hare Krishna temple would come and prepare vegetarian feasts redolent of cumin, coriander, and turmeric. "Steve would be starving when he arrived, and he would stuff himself," Holmes recalled. "Then he would go and purge. For years I thought he was bulimic. It was very upsetting, because we had gone to all that trouble of creating these feasts, and he couldn't hold it down."

Jobs was also beginning to have a little trouble stomaching Friedland's cult leader style. "Perhaps he saw a little bit too much of Robert in himself," said Kottke. Although the commune was supposed to be a refuge from materialism, Friedland began operating it more as a business; his followers were told to chop and sell firewood, make apple presses and wood stoves, and engage in other commercial endeavors for which they were not paid. One night Jobs slept under the table in the kitchen and was amused to notice that people kept coming in and stealing each other's food from the refrigerator. Communal economics were not for him. "It started to get very materialistic," Jobs recalled. "Everybody got the idea they were working very hard for Robert's farm, and one by one they started to leave. I got pretty sick of it."

Many years later, after Friedland had become a billionaire copper and gold mining executive—working out of Vancouver, Singapore, and Mongolia—I met him for drinks in New York. That evening I emailed Jobs and mentioned my encounter. He telephoned me from California within an hour and warned me against listening to Friedland. He said that when Friedland was in trouble because of environmental abuses committed by some of his mines, he had tried to contact Jobs to intervene with Bill Clinton, but Jobs had not responded. "Robert always portrayed himself as a spiritual person, but he crossed the line from being charismatic to being a con man," Jobs said. "It was a strange thing to have one of the spiritual people in your young life turn out to be, symbolically and in reality, a gold miner."

. . . Drop Out

Jobs quickly became bored with college. He liked being at Reed, just not taking the required classes. In fact he was surprised when he found out that, for all of its hippie aura, there were strict course requirements. When Wozniak came to visit, Jobs waved his schedule at him and complained, "They are making me take all these courses." Woz replied, "Yes, that's what they do in college." Jobs refused to go to the classes he was assigned and instead went to the ones he wanted, such as a dance class where he could enjoy both the creativity and the chance to meet girls. "I would never have refused to take the courses you were supposed to, that's a difference in our personality," Wozniak marveled.

Jobs also began to feel guilty, he later said, about spending so much of his parents' money on an education that did not seem worthwhile. "All of my working-class parents' savings were being spent on my college tuition," he recounted in a famous commencement address at Stanford. "I had no idea what I wanted to do with my life and no idea how college was going to help me figure it out. And here I was spending all of the money my parents had saved their entire life. So I decided to drop out and trust that it would all work out okay."

He didn't actually want to leave Reed; he just wanted to quit paying tuition and taking classes that didn't interest him. Remarkably, Reed tolerated that. "He had a very inquiring mind that was enormously attractive," said the dean of students, Jack Dudman. "He refused to accept automatically received truths, and he wanted to examine everything himself." Dudman allowed Jobs to audit classes and stay with friends in the dorms even after he stopped paying tuition.

"The minute I dropped out I could stop taking the required classes that didn't interest me, and begin dropping in on the ones that looked interesting," he said. Among them was a calligraphy class that appealed to him after he saw posters on campus that were beautifully drawn. "I learned about serif and sans serif typefaces, about varying the amount of space between different letter combinations, about what makes great typography great. It was beautiful, historical, artistically subtle in a way that science can't capture, and I found it fascinating."

It was yet another example of Jobs consciously positioning himself at the intersection of the arts and technology. In all of his products, technology would be married to great design, elegance, human touches, and even romance. He would be in the fore of pushing friendly graphical user interfaces. The calligraphy course would become iconic in that regard. "If I had never dropped in on that single course in college, the Mac would have never had multiple typefaces or proportionally spaced fonts. And since Windows just copied the Mac, it's likely that no personal computer would have them."

In the meantime Jobs eked out a bohemian existence on the fringes of Reed. He went barefoot most of the time, wearing sandals when it snowed. Elizabeth Holmes made meals for him, trying to keep up with his obsessive diets. He returned soda bottles for spare change, continued his treks to the free Sunday dinners at the Hare Krishna temple, and wore a down jacket in the heatless garage apartment he rented for $20 a month. When he needed money, he found work at the psychology department lab maintaining the electronic equipment that was used for animal behavior experiments. Occasionally Chrisann Brennan would come to visit. Their relationship sputtered along erratically. But mostly he tended to the stirrings of his own soul and personal quest for enlightenment.

"I came of age at a magical time," he reflected later. "Our consciousness was raised by Zen, and also by LSD." Even later in life he would credit psychedelic drugs for making him more enlightened. "Taking LSD was a profound experience, one of the most important things in my life. LSD shows you that there's another side to the coin, and you can't remember it when it wears off, but you know it. It reinforced my sense of what was important—creating great things instead of making money, putting things back into the stream of history and of human consciousness as much as I could."

CHAPTER FOUR

ATARI AND INDIA

Zen and the Art of Game Design

Atari

In February 1974, after eighteen months of hanging around Reed, Jobs decided to move back to his parents' home in Los Altos and look for a job. It was not a difficult search. At peak times during the 1970s, the classified section of the *San Jose Mercury* carried up to sixty pages of technology help-wanted ads. One of those caught Jobs's eye. "Have fun, make money," it said. That day Jobs walked into the lobby of the video game manufacturer Atari and told the personnel director, who was startled by his unkempt hair and attire, that he wouldn't leave until they gave him a job.

Atari's founder was a burly entrepreneur named Nolan Bushnell, who was a charismatic visionary with a nice touch of showmanship in him—in other words, another role model waiting to be emulated. After he became famous, he liked driving around in a Rolls, smoking dope, and holding staff meetings in a hot tub. As Friedland had done and as Jobs would learn to do, he was able to turn charm into a cunning force, to cajole and intimidate and distort reality with the power of his personality. His chief engineer was Al Alcorn, beefy and jovial and a bit more grounded, the house grown-up trying to implement the vision and curb the enthusiasms of Bushnell. Their big hit thus far was a video game called Pong, in which two players tried to volley a blip on a screen with two movable lines that acted as paddles. (If you're under thirty, ask your parents.)

When Jobs arrived in the Atari lobby wearing sandals and demanding a job, Alcorn was the one who was summoned. "I was told, 'We've got a hippie kid in the lobby. He says he's not going to leave until we hire him. Should we call the cops or let him in?' I said bring him on in!"

Jobs thus became one of the first fifty employees at Atari, working as a technician for $5 an hour. "In retrospect, it was weird to hire a dropout from Reed," Alcorn recalled. "But I saw something in him. He was very intelligent, enthusiastic, excited about tech." Alcorn assigned him to work with a straitlaced engineer named Don Lang. The next day Lang complained, "This guy's a goddamn hippie with b.o. Why did you do this to me? And he's impossible to deal with." Jobs clung to the belief that his fruit-heavy vegetarian diet would prevent not just mucus but also body odor, even if he didn't use deodorant or shower regularly. It was a flawed theory.

Lang and others wanted to let Jobs go, but Bushnell worked out a solution. "The smell and behavior wasn't an issue with me," he said. "Steve was prickly, but I kind of liked him. So I asked him to go on the night shift. It was a way to save him." Jobs would come in after Lang and others had left and work through most of the night. Even thus isolated, he became known for his brashness. On those occasions when he happened to interact with others, he was prone to informing them that they were "dumb shits." In retrospect, he stands by that judgment. "The only reason I shone was that everyone else was so bad," Jobs recalled.

Despite his arrogance (or perhaps because of it) he was able to charm Atari's boss. "He was more philosophical than the other people I worked with," Bushnell recalled. "We used to discuss free will versus determinism. I tended to believe that things were much more determined, that we were programmed. If we had perfect information, we could predict people's actions. Steve felt the opposite." That outlook accorded with his faith in the power of the will to bend reality.

Jobs helped improve some of the games by pushing the chips to produce fun designs, and Bushnell's inspiring willingness to play by his own rules rubbed off on him. In addition, he intuitively appreciated the simplicity of Atari's games. They came with no manual and needed to be uncomplicated enough that a stoned freshman could figure them out. The only instructions for Atari's *Star Trek* game were "1. Insert quarter. 2. Avoid Klingons."

Not all of his coworkers shunned Jobs. He became friends with Ron Wayne, a draftsman at Atari, who had earlier started a company that built slot machines. It subsequently failed, but Jobs became fascinated with the idea that it was possible to start your own company. "Ron was an amazing guy," said Jobs. "He started companies. I had never met anybody like that." He proposed to Wayne that they go into business together; Jobs said he could borrow $50,000, and they could design and market a slot machine. But Wayne had already been burned in business, so he declined. "I said that was the quickest way to lose $50,000," Wayne recalled, "but I admired the fact that he had a burning drive to start his own business."

One weekend Jobs was visiting Wayne at his apartment, engaging as they often did in philosophical discussions, when Wayne said that there was something he needed to tell him. "Yeah, I think I know what it is," Jobs replied. "I think you like men." Wayne said yes. "It was my first encounter with someone who I knew was gay," Jobs recalled. "He planted the right perspective of it for me." Jobs grilled him: "When you see a beautiful woman, what do you feel?" Wayne replied, "It's like when you look at a beautiful horse. You can appreciate it, but you don't want to sleep with it. You appreciate beauty for what it is." Wayne said that it is a testament to Jobs that he felt like revealing this to him. "Nobody at Atari knew, and I could count on my toes and fingers the number of people I told in my whole life. But I guess it just felt right to tell him, that he would understand, and it didn't have any effect on our relationship."

India

One reason Jobs was eager to make some money in early 1974 was that Robert Friedland, who had gone to India the summer before, was urging him to take his own spiritual journey there. Friedland had studied in India with Neem Karoli Baba (Maharaj-ji), who had been the guru to much of the sixties hippie movement. Jobs decided he should do the same, and he recruited Daniel Kottke to go with him. Jobs was not motivated by mere adventure. "For me it was a serious search," he said. "I'd been turned on to the idea of enlightenment and trying to figure out who I was and how I fit into things." Kottke adds that Jobs's quest seemed driven partly by not knowing his birth parents. "There was a hole in him, and he was trying to fill it."

When Jobs told the folks at Atari that he was quitting to go search for a guru in India, the jovial Alcorn was amused. "He comes in and stares at me and declares, 'I'm going to find my guru,' and I say, 'No shit, that's super. Write me!' And he says he wants me to help pay, and I tell him, 'Bullshit!' " Then Alcorn had an idea. Atari was making kits and shipping them to Munich, where they were built into finished machines and distributed by a wholesaler in Turin. But there was a problem: Because the games were designed for the American rate of sixty frames per second, there were frustrating interference problems in Europe, where the rate was fifty frames per second. Alcorn sketched out a fix with Jobs and then offered to pay for him to go to Europe to implement it. "It's got to be cheaper to get to India from there," he said. Jobs agreed. So Alcorn sent him on his way with the exhortation, "Say hi to your guru for me."

Jobs spent a few days in Munich, where he solved the interference problem, but in the process he flummoxed the dark-suited German managers. They complained to Alcorn that he dressed and smelled like a bum and behaved rudely. "I said, 'Did he solve the problem?' And they said, 'Yeah.' I said, 'If you got any more problems, you just call me, I got more guys just like him!' They said, 'No, no we'll take care of it next time.' " For his part, Jobs was upset that the Germans kept trying to feed him meat and potatoes. "They don't even have a word for vegetarian," he complained (incorrectly) in a phone call to Alcorn.

He had a better time when he took the train to see the distributor in Turin, where the Italian pastas and his host's camaraderie were more simpatico. "I had a wonderful couple of weeks in Turin, which is this charged-up industrial town," he recalled. "The distributor took me every night to dinner at this place where there were only eight tables and no menu. You'd just tell them what you wanted, and they made it. One of the tables was on reserve for the chairman of Fiat. It was really super." He next went to Lugano, Switzerland, where he stayed with Friedland's uncle, and from there took a flight to India.

When he got off the plane in New Delhi, he felt waves of heat rising from the tarmac, even though it was only April. He had been given the name of a hotel, but it was full, so he went to one his taxi driver insisted was good. "I'm sure he was getting some baksheesh, because he took me to this complete dive." Jobs asked the owner whether the water was filtered and foolishly believed the answer. "I got dysentery pretty fast. I was sick, really sick, a really high fever. I dropped from 160 pounds to 120 in about a week."

Once he got healthy enough to move, he decided that he needed to get out of Delhi. So he headed to the town of Haridwar, in western India near the source of the Ganges, which was having a festival known as the Kumbh Mela. More than ten million people poured into a town that usually contained fewer than 100,000 residents. "There were holy men all around. Tents with this teacher and that teacher. There were people riding elephants, you name it. I was there for a few days, but I decided that I needed to get out of there too."

He went by train and bus to a village near Nainital in the foothills of the Himalayas. That was where Neem Karoli Baba lived, or had lived. By the time Jobs got there, he was no longer alive, at least in the same incarnation. Jobs rented a room with a mattress on the floor from a family who helped him recuperate by feeding him vegetarian meals. "There was a copy there of *Autobiography of a Yogi* in English that a previous traveler had left, and I read it several times because there was not a lot to do, and I walked around from village to village and recovered from my dysentery." Among those who were part of the community there was Larry Brilliant, an epidemiologist who was working to eradicate smallpox and who later ran Google's philanthropic arm and the Skoll Foundation. He became Jobs's lifelong friend.

At one point Jobs was told of a young Hindu holy man who was holding a gathering of his followers at the Himalayan estate of a wealthy businessman. "It was a chance to meet a spiritual being and hang out with his followers, but it was also a chance to have a good meal. I could smell the food as we got near, and I was very hungry." As Jobs was eating, the holy man—who was not much older than Jobs—picked him out of the crowd, pointed at him, and began laughing maniacally. "He came running over and grabbed me and made a tooting sound and said, 'You are just like a baby,'" recalled Jobs. "I was not relishing this attention." Taking Jobs by the hand, he led him out of the worshipful crowd and walked him up to a hill, where there was a well and a small pond. "We sit down and he pulls out this straight razor. I'm thinking he's a nutcase and begin to worry. Then he pulls out a bar of soap—I had long hair at the time—and he lathered up my hair and shaved my head. He told me that he was saving my health."

Daniel Kottke arrived in India at the beginning of the summer, and Jobs went back to New Delhi to meet him. They wandered, mainly by bus, rather aimlessly. By this point Jobs was no longer trying to find a guru who could impart wisdom, but instead was seeking enlightenment through ascetic experience, deprivation, and simplicity. He was not able to achieve inner calm. Kottke remembers him getting into a furious shouting match with a Hindu woman in a village marketplace who, Jobs alleged, had been watering down the milk she was selling them.

Yet Jobs could also be generous. When they got to the town of Manali, Kottke's sleeping bag was stolen with his traveler's checks in it. "Steve covered my food expenses and bus ticket back to Delhi," Kottke recalled. He also gave Kottke the rest of his own money, $100, to tide him over.

During his seven months in India, he had written to his parents only sporadically, getting mail at the American Express office in New

Delhi when he passed through, and so they were somewhat surprised when they got a call from the Oakland airport asking them to pick him up. They immediately drove up from Los Altos. "My head had been shaved, I was wearing Indian cotton robes, and my skin had turned a deep, chocolate brown-red from the sun," he recalled. "So I'm sitting there and my parents walked past me about five times and finally my mother came up and said 'Steve?' and I said 'Hi!' "

They took him back home, where he continued trying to find himself. It was a pursuit with many paths toward enlightenment. In the mornings and evenings he would meditate and study Zen, and in between he would drop in to audit physics or engineering courses at Stanford.

The Search

Jobs's interest in Eastern spirituality, Hinduism, Zen Buddhism, and the search for enlightenment was not merely the passing phase of a nineteen-year-old. Throughout his life he would seek to follow many of the basic precepts of Eastern religions, such as the emphasis on experiential *prajñā,* wisdom or cognitive understanding that is intuitively experienced through concentration of the mind. Years later, sitting in his Palo Alto garden, he reflected on the lasting influence of his trip to India:

> Coming back to America was, for me, much more of a cultural shock than going to India. The people in the Indian countryside don't use their intellect like we do, they use their intuition instead, and their intuition is far more developed than in the rest of the world. Intuition is a very powerful thing, more powerful than intellect, in my opinion. That's had a big impact on my work.
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> Western rational thought is not an innate human characteristic; it is learned and is the great achievement of Western civilization. In the villages of India, they never learned it. They learned something else, which is in some ways just as valuable but in other ways is not. That's the power of intuition and experiential wisdom.

> Coming back after seven months in Indian villages, I saw the craziness of the Western world as well as its capacity for rational thought. If you just sit and observe, you will see how restless your mind is. If you try to calm it, it only makes it worse, but over time it does calm, and when it does, there's room to hear more subtle things—that's when your intuition starts to blossom and you start to see things more clearly and be in the present more. Your mind just slows down, and you see a tremendous expanse in the moment. You see so much more than you could see before. It's a discipline; you have to practice it.
>
> Zen has been a deep influence in my life ever since. At one point I was thinking about going to Japan and trying to get into the Eihei-ji monastery, but my spiritual advisor urged me to stay here. He said there is nothing over there that isn't here, and he was correct. I learned the truth of the Zen saying that if you are willing to travel around the world to meet a teacher, one will appear next door.

Jobs did in fact find a teacher right in his own neighborhood. Shunryu Suzuki, who wrote *Zen Mind, Beginner's Mind* and ran the San Francisco Zen Center, used to come to Los Altos every Wednesday evening to lecture and meditate with a small group of followers. After a while he asked his assistant, Kobun Chino Otogawa, to open a full-time center there. Jobs became a faithful follower, along with his occasional girlfriend, Chrisann Brennan, and Daniel Kottke and Elizabeth Holmes. He also began to go by himself on retreats to the Tassajara Zen Center, a monastery near Carmel where Kobun also taught.

Kottke found Kobun amusing. "His English was atrocious," he recalled. "He would speak in a kind of haiku, with poetic, suggestive phrases. We would sit and listen to him, and half the time we had no idea what he was going on about. I took the whole thing as a kind of lighthearted interlude." Holmes was more into the scene. "We would go to Kobun's meditations, sit on zafu cushions, and he would sit on a dais," she said. "We learned how to tune out distractions. It was a magical thing. One evening we were meditating with Kobun when it was raining, and he taught us how to use ambient sounds to bring us back to focus on our meditation."

As for Jobs, his devotion was intense. "He became really serious and self-important and just generally unbearable," according to Kottke. He began meeting with Kobun almost daily, and every few months they went on retreats together to meditate. "I ended up spending as much time as I could with him," Jobs recalled. "He had a wife who was a nurse at Stanford and two kids. She worked the night shift, so I would go over and hang out with him in the evenings. She would get home about midnight and shoo me away." They sometimes discussed whether Jobs should devote himself fully to spiritual pursuits, but Kobun counseled otherwise. He assured Jobs that he could keep in touch with his spiritual side while working in a business. The relationship turned out to be lasting and deep; seventeen years later Kobun would perform Jobs's wedding ceremony.

Jobs's compulsive search for self-awareness also led him to undergo primal scream therapy, which had recently been developed and popularized by a Los Angeles psychotherapist named Arthur Janov. It was based on the Freudian theory that psychological problems are caused by the repressed pains of childhood; Janov argued that they could be resolved by re-suffering these primal moments while fully expressing the pain—sometimes in screams. To Jobs, this seemed preferable to talk therapy because it involved intuitive feeling and emotional action rather than just rational analyzing. "This was not something to think about," he later said. "This was something to do: to close your eyes, hold your breath, jump in, and come out the other end more insightful."

A group of Janov's adherents ran a program called the Oregon Feeling Center in an old hotel in Eugene that was managed by Jobs's Reed College guru Robert Friedland, whose All One Farm commune was nearby. In late 1974, Jobs signed up for a twelve-week course of therapy there costing $1,000. "Steve and I were both into personal growth, so I wanted to go with him," Kottke recounted, "but I couldn't afford it."

Jobs confided to close friends that he was driven by the pain he was feeling about being put up for adoption and not knowing about his birth parents. "Steve had a very profound desire to know his physical parents so he could better know himself," Friedland later said. He had learned from Paul and Clara Jobs that his birth parents had both been graduate students at a university and that his father might be Syrian. He had even thought about hiring a private investigator, but he decided not to do so for the time being. "I didn't want to hurt my parents," he recalled, referring to Paul and Clara.

"He was struggling with the fact that he had been adopted," according to Elizabeth Holmes. "He felt that it was an issue that he needed to get hold of emotionally." Jobs admitted as much to her. "This is something that is bothering me, and I need to focus on it," he said. He was even more open with Greg Calhoun. "He was doing a lot of soul-searching about being adopted, and he talked about it with me a lot," Calhoun recalled. "The primal scream and the mucusless diets, he was trying to cleanse himself and get deeper into his frustration about his birth. He told me he was deeply angry about the fact that he had been given up."

John Lennon had undergone the same primal scream therapy in 1970, and in December of that year he released the song "Mother" with the Plastic Ono Band. It dealt with Lennon's own feelings about a father who had abandoned him and a mother who had been killed when he was a teenager. The refrain includes the haunting chant "Mama don't go, Daddy come home." Jobs used to play the song often.

Jobs later said that Janov's teachings did not prove very useful. "He offered a ready-made, buttoned-down answer which turned out to be far too oversimplistic. It became obvious that it was not going to yield any great insight." But Holmes contended that it made him more confident: "After he did it, he was in a different place. He had a very abrasive personality, but there was a peace about him for a while. His confidence improved and his feelings of inadequacy were reduced."

Jobs came to believe that he could impart that feeling of confidence to others and thus push them to do things they hadn't thought possible. Holmes had broken up with Kottke and joined a religious cult in San Francisco that expected her to sever ties with all past friends. But Jobs rejected that injunction. He arrived at the cult house in his Ford Ranchero one day and announced that he was driving up to Friedland's apple farm and she was to come. Even more brazenly, he said she would have to drive part of the way, even though she didn't know how to use the stick shift. "Once we got on the open road, he made me get behind the wheel, and he shifted the car until we got up to 55 miles per hour," she recalled. "Then he puts on a tape of Dylan's *Blood on the Tracks*, lays his head in my lap, and goes to sleep. He had the attitude that he could do anything, and therefore so can you. He put his life in my hands. So that made me do something I didn't think I could do."

It was the brighter side of what would become known as his reality distortion field. "If you trust him, you can do things," Holmes said. "If he's decided that something should happen, then he's just going to make it happen."

Breakout

One day in early 1975 Al Alcorn was sitting in his office at Atari when Ron Wayne burst in. "Hey, Stevie is back!" he shouted.

"Wow, bring him on in," Alcorn replied.

Jobs shuffled in barefoot, wearing a saffron robe and carrying a copy of *Be Here Now*, which he handed to Alcorn and insisted he read. "Can I have my job back?" he asked.

"He looked like a Hare Krishna guy, but it was great to see him," Alcorn recalled. "So I said, sure!"

Once again, for the sake of harmony, Jobs worked mostly at night. Wozniak, who was living in an apartment nearby and working at HP, would come by after dinner to hang out and play the video games. He had become addicted to Pong at a Sunnyvale bowling alley, and he was able to build a version that he hooked up to his home TV set.

One day in the late summer of 1975, Nolan Bushnell, defying the prevailing wisdom that paddle games were over, decided to develop a single-player version of Pong; instead of competing against an opponent, the player would volley the ball into a wall that lost a brick whenever it was hit. He called Jobs into his office, sketched it out on his little blackboard, and asked him to design it. There would be a bonus, Bushnell told him, for every chip fewer than fifty that he used. Bushnell knew that Jobs was not a great engineer, but he assumed, correctly, that he would recruit Wozniak, who was always hanging around. "I looked at it as a two-for-one thing," Bushnell recalled. "Woz was a better engineer."

Wozniak was thrilled when Jobs asked him to help and proposed splitting the fee. "This was the most wonderful offer in my life, to actually design a game that people would use," he recalled. Jobs said it had to be done in four days and with the fewest chips possible. What he hid from Wozniak was that the deadline was one that Jobs had imposed, because he needed to get to the All One Farm to help prepare for the apple harvest. He also didn't mention that there was a bonus tied to keeping down the number of chips.

"A game like this might take most engineers a few months," Wozniak recalled. "I thought that there was no way I could do it, but Steve made me sure that I could." So he stayed up four nights in a row and did it. During the day at HP, Wozniak would sketch out his design on paper. Then, after a fast-food meal, he would go right to Atari and stay all night. As Wozniak churned out the design, Jobs sat on a bench to his left implementing it by wire-wrapping the chips onto a breadboard. "While Steve was breadboarding, I spent time playing my favorite game ever, which was the auto racing game Gran Trak 10," Wozniak said.

Astonishingly, they were able to get the job done in four days, and Wozniak used only forty-five chips. Recollections differ, but by most accounts Jobs simply gave Wozniak half of the base fee and not the bonus Bushnell paid for saving five chips. It would be another ten years before Wozniak discovered (by being shown the tale in a book on the history of Atari titled *Zap*) that Jobs had been paid this bonus. "I think that Steve needed the money, and he just didn't tell me the truth," Wozniak later said. When he talks about it now, there are long pauses, and he admits that it causes him pain. "I wish he had just been honest. If he had told me he needed the money, he should have known I would have just given it to him. He was a friend. You help your friends." To Wozniak, it showed a fundamental difference in their characters.

"Ethics always mattered to me, and I still don't understand why he would've gotten paid one thing and told me he'd gotten paid another," he said. "But, you know, people are different."

When Jobs learned this story was published, he called Wozniak to deny it. "He told me that he didn't remember doing it, and that if he did something like that he would remember it, so he probably didn't do it," Wozniak recalled. When I asked Jobs directly, he became unusually quiet and hesitant. "I don't know where that allegation comes from," he said. "I gave him half the money I ever got. That's how I've always been with Woz. I mean, Woz stopped working in 1978. He never did one ounce of work after 1978. And yet he got exactly the same shares of Apple stock that I did."

Is it possible that memories are muddled and that Jobs did not, in fact, shortchange Wozniak? "There's a chance that my memory is all wrong and messed up," Wozniak told me, but after a pause he reconsidered. "But no. I remember the details of this one, the $350 check." He confirmed his memory with Nolan Bushnell and Al Alcorn. "I remember talking about the bonus money to Woz, and he was upset," Bushnell said. "I said yes, there was a bonus for each chip they saved, and he just shook his head and then clucked his tongue."

Whatever the truth, Wozniak later insisted that it was not worth rehashing. Jobs is a complex person, he said, and being manipulative is just the darker facet of the traits that make him successful. Wozniak would never have been that way, but as he points out, he also could never have built Apple. "I would rather let it pass," he said when I pressed the point. "It's not something I want to judge Steve by."

The Atari experience helped shape Jobs's approach to business and design. He appreciated the user-friendliness of Atari's insert-quarter-avoid-Klingons games. "That simplicity rubbed off on him and made him a very focused product person," said Ron Wayne. Jobs also absorbed some of Bushnell's take-no-prisoners attitude. "Nolan wouldn't take no for an answer," according to Alcorn, "and this was Steve's first impression of how things got done. Nolan was never abusive, like Steve sometimes is. But he had the same driven attitude. It made me cringe, but dammit, it got things done. In that way Nolan was a mentor for Jobs."

Bushnell agreed. "There is something indefinable in an entrepreneur, and I saw that in Steve," he said. "He was interested not just in engineering, but also the business aspects. I taught him that if you act like you can do something, then it will work. I told him, 'Pretend to be completely in control and people will assume that you are.' "

CHAPTER FIVE

THE APPLE I

Turn On, Boot Up, Jack In . . .

Daniel Kottke and Jobs with the Apple I at the Atlantic City computer fair, 1976

Machines of Loving Grace

In San Francisco and the Santa Clara Valley during the late 1960s, various cultural currents flowed together. There was the technology revolution that began with the growth of military contractors and soon included electronics firms, microchip makers, video game designers, and computer companies. There was a hacker subculture—filled with wireheads, phreakers, cyberpunks, hobbyists, and just plain geeks—that included engineers who didn't conform to the HP mold and their kids who weren't attuned to the wavelengths of the subdivisions. There were quasi-academic groups doing studies on the effects of LSD; participants included Doug Engelbart of the Augmentation Research Center in Palo Alto, who later helped develop the computer mouse and graphical user interfaces, and Ken Kesey, who celebrated the drug with music-and-light shows featuring a house band that became the Grateful Dead. There was the hippie movement, born out of the Bay Area's beat generation, and the rebellious political activists, born out of the Free Speech Movement at Berkeley. Overlaid on it all were various self-fulfillment movements pursuing paths to personal enlightenment: Zen and Hinduism, meditation and yoga, primal scream and sensory deprivation, Esalen and est.

This fusion of flower power and processor power, enlightenment and technology, was embodied by Steve Jobs as he meditated in the mornings, audited physics classes at Stanford, worked nights at Atari, and dreamed of starting his own business. "There was just something going on here," he said, looking back at the time and place. "The best music came from here—the Grateful Dead, Jefferson Airplane, Joan Baez, Janis Joplin—and so did the integrated circuit, and things like the *Whole Earth Catalog*."

Initially the technologists and the hippies did not interface well. Many in the counterculture saw computers as ominous and Orwellian, the province of the Pentagon and the power structure. In *The Myth of the Machine*, the historian Lewis Mumford warned that computers were sucking away our freedom and destroying "life-enhancing values." An injunction on punch cards of the period—"Do not fold, spindle or mutilate"—became an ironic phrase of the antiwar Left.

But by the early 1970s a shift was under way. "Computing went from being dismissed as a tool of bureaucratic control to being embraced as a symbol of individual expression and liberation," John Markoff wrote in his study of the counterculture's convergence with the computer industry, *What the Dormouse Said*. It was an ethos lyrically expressed in Richard Brautigan's 1967 poem, "All Watched Over by Machines of Loving Grace," and the cyberdelic fusion was certified when Timothy Leary declared that personal computers had become the new LSD and years later revised his famous mantra to proclaim, "Turn on, boot up, jack in." The musician Bono, who later became a friend of Jobs, often discussed with him why those immersed in the rock-drugs-rebel counterculture of the Bay Area ended up helping to create the personal computer industry. "The people who invented the twenty-first century were pot-smoking, sandal-wearing hippies from the West Coast like Steve, because they saw differently," he said. "The hierarchical systems of the East Coast, England, Germany, and Japan do not encourage this different thinking. The sixties produced an anarchic mind-set that is great for imagining a world not yet in existence."

One person who encouraged the denizens of the counterculture to make common cause with the hackers was Stewart Brand. A puckish visionary who generated fun and ideas over many decades, Brand was a participant in one of the early sixties LSD studies in Palo Alto. He joined with his fellow subject Ken Kesey to produce the acid-celebrating Trips Festival, appeared in the opening scene of Tom Wolfe's *The Electric Kool-Aid Acid Test*, and worked with Doug Engelbart to create a seminal sound-and-light presentation of new technologies called the Mother of All Demos. "Most of our generation scorned computers as the embodiment of centralized control," Brand later noted. "But a tiny contingent—later called hackers—embraced computers and set about transforming them into tools of liberation. That turned out to be the true royal road to the future."

Brand ran the Whole Earth Truck Store, which began as a roving truck that sold useful tools and educational materials, and in 1968 he decided to extend its reach with the *Whole Earth Catalog*. On its first cover was the famous picture of Earth taken from space; its subtitle was "Access to Tools." The underlying philosophy was that technology could be our friend. Brand wrote on the first page of the first edition, "A realm of intimate, personal power is developing—power of the individual to conduct his own education, find his own inspiration, shape his own environment, and share his adventure with whoever is interested. Tools that aid this process are sought and promoted by the *Whole Earth Catalog*." Buckminster Fuller followed with a poem that began: "I see God in the instruments and mechanisms that work reliably."

Jobs became a *Whole Earth* fan. He was particularly taken by the final issue, which came out in 1971, when he was still in high school, and he brought it with him to college and then to the All One Farm. "On the back cover of their final issue" Jobs recalled, "was a photograph of an early morning country road, the kind you might find yourself hitchhiking on if you were so adventurous. Beneath it were the words: 'Stay Hungry. Stay Foolish.'" Brand sees Jobs as one of the purest embodiments of the cultural mix that the catalog sought to celebrate. "Steve is right at the nexus of the counterculture and technology," he said. "He got the notion of tools for human use."

Brand's catalog was published with the help of the Portola Institute, a foundation dedicated to the fledgling field of computer education. The foundation also helped launch the People's Computer Company, which was not a company at all but a newsletter and organization with the motto "Computer power to the people." There were occasional Wednesday-night potluck dinners, and two of the regulars, Gordon French and Fred Moore, decided to create a more formal club where news about personal electronics could be shared.

They were energized by the arrival of the January 1975 issue of *Popular Mechanics*, which had on its cover the first personal computer kit, the Altair. The Altair wasn't much—just a $495 pile of parts that had to be soldered to a board that would then do little—but for hobbyists and hackers it heralded the dawn of a new era. Bill Gates and Paul Allen read the magazine and started working on a version of BASIC, an easy-to-use programming language, for the Altair. It also caught the attention of Jobs and Wozniak. And when an Altair kit arrived at the People's Computer Company, it became the centerpiece for the first meeting of the club that French and Moore had decided to launch.

The Homebrew Computer Club

The group became known as the Homebrew Computer Club, and it encapsulated the *Whole Earth* fusion between the counterculture and technology. It would become to the personal computer era something akin to what the Turk's Head coffeehouse was to the age of Dr. Johnson, a place where ideas were exchanged and disseminated. Moore wrote the flyer for the first meeting, held on March 5, 1975, in French's

Menlo Park garage: "Are you building your own computer? Terminal, TV, typewriter?" it asked. "If so, you might like to come to a gathering of people with like-minded interests."

Allen Baum spotted the flyer on the HP bulletin board and called Wozniak, who agreed to go with him. "That night turned out to be one of the most important nights of my life," Wozniak recalled. About thirty other people showed up, spilling out of French's open garage door, and they took turns describing their interests. Wozniak, who later admitted to being extremely nervous, said he liked "video games, pay movies for hotels, scientific calculator design, and TV terminal design," according to the minutes prepared by Moore. There was a demonstration of the new Altair, but more important to Wozniak was seeing the specification sheet for a microprocessor.

As he thought about the microprocessor—a chip that had an entire central processing unit on it—he had an insight. He had been designing a terminal, with a keyboard and monitor, that would connect to a distant minicomputer. Using a microprocessor, he could put some of the capacity of the minicomputer inside the terminal itself, so it could become a small stand-alone computer on a desktop. It was an enduring idea: keyboard, screen, and computer all in one integrated personal package. "This whole vision of a personal computer just popped into my head," he said. "That night, I started to sketch out on paper what would later become known as the Apple I."

At first he planned to use the same microprocessor that was in the Altair, an Intel 8080. But each of those "cost almost more than my monthly rent," so he looked for an alternative. He found one in the Motorola 6800, which a friend at HP was able to get for $40 apiece. Then he discovered a chip made by MOS Technologies that was electronically the same but cost only $20. It would make his machine affordable, but it would carry a long-term cost. Intel's chips ended up becoming the industry standard, which would haunt Apple when its computers were incompatible with it.

After work each day, Wozniak would go home for a TV dinner and then return to HP to moonlight on his computer. He spread out the parts in his cubicle, figured out their placement, and soldered them onto his motherboard. Then he began writing the software that would get the microprocessor to display images on the screen. Because he could not afford to pay for computer time, he wrote the code by hand. After a couple of months he was ready to test it. "I typed a few keys on the keyboard and I was shocked! The letters were displayed on the screen." It was Sunday, June 29, 1975, a milestone for the personal computer. "It was the first time in history," Wozniak later said, "anyone had typed a character on a keyboard and seen it show up on their own computer's screen right in front of them."

Jobs was impressed. He peppered Wozniak with questions: Could the computer ever be networked? Was it possible to add a disk for memory storage? He also began to help Woz get components. Particularly important were the dynamic random-access memory chips. Jobs made a few calls and was able to score some from Intel for free. "Steve is just that sort of person," said Wozniak. "I mean, he knew how to talk to a sales representative. I could never have done that. I'm too shy."

Jobs began to accompany Wozniak to Homebrew meetings, carrying the TV monitor and helping to set things up. The meetings now attracted more than one hundred enthusiasts and had been moved to the auditorium of the Stanford Linear Accelerator Center. Presiding with a pointer and a free-form manner was Lee Felsenstein, another embodiment of the merger between the world of computing and the counterculture. He was an engineering school dropout, a participant in the Free Speech Movement, and an antiwar activist. He had written for the alternative newspaper *Berkeley Barb* and then gone back to being a computer engineer.

Woz was usually too shy to talk in the meetings, but people would gather around his machine afterward, and he would proudly show off his progress. Moore had tried to instill in the Homebrew an ethos of swapping and sharing rather than commerce. "The theme of the club," Woz said, "was 'Give to help others.'" It was an expression of the hacker ethic that information should be free and all authority mistrusted. "I designed the Apple I because I wanted to give it away for free to other people," said Wozniak.

This was not an outlook that Bill Gates embraced. After he and Paul Allen had completed their BASIC interpreter for the Altair, Gates was appalled that members of the Homebrew were making copies of it and sharing it without paying him. So he wrote what would become a famous letter to the club: "As the majority of hobbyists must be aware, most of you steal your software. Is this fair? . . . One thing you do is prevent good software from being written. Who can afford to do professional work for nothing? . . . I would appreciate letters from anyone who wants to pay up."

Steve Jobs, similarly, did not embrace the notion that Wozniak's creations, be it a Blue Box or a computer, wanted to be free. So he convinced Wozniak to stop giving away copies of his schematics. Most people didn't have time to build it themselves anyway, Jobs argued. "Why don't we build and sell printed circuit boards to them?" It was an example of their symbiosis. "Every time I'd design something great, Steve would find a way to make money for us," said Wozniak. Wozniak admitted that he would have never thought of doing that on his own. "It never crossed my mind to sell computers. It was Steve who said, 'Let's hold them in the air and sell a few.' "

Jobs worked out a plan to pay a guy he knew at Atari to draw the circuit boards and then print up fifty or so. That would cost about $1,000, plus the fee to the designer. They could sell them for $40 apiece and perhaps clear a profit of $700. Wozniak was dubious that they could sell them all. "I didn't see how we would make our money back," he recalled. He was already in trouble with his landlord for bouncing checks and now had to pay each month in cash.

Jobs knew how to appeal to Wozniak. He didn't argue that they were sure to make money, but instead that they would have a fun adventure. "Even if we lose our money, we'll have a company," said Jobs as they were driving in his Volkswagen bus. "For once in our lives, we'll have a company." This was enticing to Wozniak, even more than any prospect of getting rich. He recalled, "I was excited to think about us like that. To be two best friends starting a company. Wow. I knew right then that I'd do it. How could I not?"

In order to raise the money they needed, Wozniak sold his HP 65 calculator for $500, though the buyer ended up stiffing him for half of that. For his part, Jobs sold his Volkswagen bus for $1,500. But the person who bought it came to find him two weeks later and said the engine had broken down, and Jobs agreed to pay for half of the repairs. Despite these little setbacks, they now had, with their own small savings thrown in, about $1,300 in working capital, the design for a product, and a plan. They would start their own computer company.

Apple Is Born

Now that they had decided to start a business, they needed a name. Jobs had gone for another visit to the All One Farm, where he had been pruning the Gravenstein apple trees, and Wozniak picked him up at the airport. On the ride down to Los Altos, they bandied around options. They considered some typical tech words, such as Matrix, and some neologisms, such as Executek, and some straightforward boring names, like Personal Computers Inc. The deadline for deciding was the next day, when Jobs wanted to start filing the papers. Finally Jobs proposed Apple Computer. "I was on one of my fruitarian diets," he explained. "I had just come back from the apple farm. It sounded fun, spirited, and not intimidating. Apple took the edge off the word 'computer.' Plus, it would get us ahead of Atari in the phone book." He told Wozniak that if a better name did not hit them by the next afternoon, they would just stick with Apple. And they did.

Apple. It was a smart choice. The word instantly signaled friendliness and simplicity. It managed to be both slightly off-beat and as normal as a slice of pie. There was a whiff of counterculture, back-to-nature earthiness to it, yet nothing could be more American. And the two words together—Apple Computer—provided an amusing disjuncture. "It doesn't quite make sense," said Mike Markkula, who soon thereafter became the first chairman of the new company. "So it forces your brain to dwell on it. Apple and computers, that doesn't go together! So it helped us grow brand awareness."

Wozniak was not yet ready to commit full-time. He was an HP company man at heart, or so he thought, and he wanted to keep his day job there. Jobs realized he needed an ally to help corral Wozniak and adjudicate if there was a disagreement. So he enlisted his friend Ron Wayne, the middle-aged engineer at Atari who had once started a slot machine company.

Wayne knew that it would not be easy to make Wozniak quit HP, nor was it necessary right away. Instead the key was to convince him that his computer designs would be owned by the Apple partnership. "Woz had a parental attitude toward the circuits he developed, and he wanted to be able to use them in other applications or let HP use them," Wayne said. "Jobs and I realized that these circuits would be the core of Apple. We spent two hours in a roundtable discussion at my apartment, and I was able to get Woz to accept this." His argument was that a great engineer would be remembered only if he teamed with a great marketer, and this required him to commit his designs to the partnership. Jobs was so impressed and grateful that he offered Wayne a 10% stake in the new partnership, turning him into a tie-breaker if Jobs and Wozniak disagreed over an issue.

"They were very different, but they made a powerful team," said Wayne. Jobs at times seemed to be driven by demons, while Woz seemed a naïf who was toyed with by angels. Jobs had a bravado that helped him get things done, occasionally by manipulating people. He could be charismatic, even mesmerizing, but also cold and brutal. Wozniak, in contrast, was shy and socially awkward, which made him seem childishly sweet. "Woz is very bright in some areas, but he's almost like a savant, since he was so stunted when it came to dealing with people he didn't know," said Jobs. "We were a good pair." It helped that Jobs was awed by Wozniak's engineering wizardry, and Wozniak was awed by Jobs's business drive. "I never wanted to deal with people and step on toes, but Steve could call up people he didn't know and make them do things," Wozniak recalled. "He could be rough on people he didn't think were smart, but he never treated me rudely, even in later years when maybe I couldn't answer a question as well as he wanted."

Even after Wozniak became convinced that his new computer design should become the property of the Apple partnership, he felt that he had to offer it first to HP, since he was working there. "I believed it was my duty to tell HP about what I had designed while working for them. That was the right thing and the ethical thing." So he demonstrated it to his managers in the spring of 1976. The senior executive at the meeting was impressed, and seemed torn, but he finally said it was not something that HP could develop. It was a hobbyist product, at least for now, and didn't fit into the company's high-quality market segments. "I was disappointed," Wozniak recalled, "but now I was free to enter into the Apple partnership."

On April 1, 1976, Jobs and Wozniak went to Wayne's apartment in Mountain View to draw up the partnership agreement. Wayne said he had some experience "writing in legalese," so he composed the three-page document himself. His "legalese" got the better of him. Paragraphs began with various flourishes: "Be it noted herewith . . . Be it further noted herewith . . . Now the refore [*sic*], in consideration of the respective assignments of interests . . ." But the division of shares and profits was clear—45%-45%-10%—and it was stipulated that any expenditures of more than $100 would require agreement of at least two of the partners. Also, the responsibilities were spelled out. "Wozniak shall assume both general and major responsibility for the conduct of Electrical Engineering; Jobs shall assume general responsibility for Electrical Engineering and Marketing, and Wayne shall assume major responsibility for Mechanical Engineering and Documentation." Jobs signed in lowercase script, Wozniak in careful cursive, and Wayne in an illegible squiggle.

Wayne then got cold feet. As Jobs started planning to borrow and spend more money, he recalled the failure of his own company. He didn't want to go through that again. Jobs and Wozniak had no personal assets, but Wayne (who worried about a global financial Armageddon) kept gold coins hidden in his mattress. Because they had structured Apple as a simple partnership rather than a corporation, the partners would be personally liable for the debts, and Wayne was afraid potential creditors would go after him. So he returned to the Santa Clara County office just eleven days later with a "statement of withdrawal" and an amendment to the partnership agreement. "By virtue of a re-assessment of understandings by and between all parties," it began, "Wayne shall hereinafter cease to function in the status of 'Partner.' " It noted that in payment for his 10% of the company, he received $800, and shortly afterward $1,500 more.

Had he stayed on and kept his 10% stake, at the end of 2010 it would have been worth approximately $2.6 billion. Instead he was then living alone in a small home in Pahrump, Nevada, where he played the penny slot machines and lived off his social security check. He later claimed he had no regrets. "I made the best decision for me at the time. Both of them were real whirlwinds, and I knew my stomach and it wasn't ready for such a ride."

Jobs and Wozniak took the stage together for a presentation to the Homebrew Computer Club shortly after they signed Apple into existence. Wozniak held up one of their newly produced circuit boards and described the microprocessor, the eight kilobytes of memory, and the version of BASIC he had written. He also emphasized what he called the main thing: "a human-typable keyboard instead of a stupid, cryptic front panel with a bunch of lights and switches." Then it was Jobs's turn. He pointed out that the Apple, unlike the Altair, had all the essential components built in. Then he challenged them with a question: How much would people be willing to pay for such a wonderful machine? He was trying to get them to see the amazing value of the Apple. It was a rhetorical flourish he would use at product presentations over the ensuing decades.

The audience was not very impressed. The Apple had a cut-rate microprocessor, not the Intel 8080. But one important person stayed behind to hear more. His name was Paul Terrell, and in 1975 he had opened a computer store, which he dubbed the Byte Shop, on Camino Real in Menlo Park. Now, a year later, he had three stores and visions of building a national chain. Jobs was thrilled to give him a private demo. "Take a look at this," he said. "You're going to like what you see." Terrell was impressed enough to hand Jobs and Woz his card. "Keep in touch," he said.

"I'm keeping in touch," Jobs announced the next day when he walked barefoot into the Byte Shop. He made the sale. Terrell agreed to order fifty computers. But there was a condition: He didn't want just $50 printed circuit boards, for which customers would then have to buy all the chips and do the assembly. That might appeal to a few hard-core hobbyists, but not to most customers. Instead he wanted the boards to be fully assembled. For that he was willing to pay about $500 apiece, cash on delivery.

Jobs immediately called Wozniak at HP. "Are you sitting down?" he asked. Wozniak said he wasn't. Jobs nevertheless proceeded to give him the news. "I was shocked, just completely shocked," Wozniak recalled. "I will never forget that moment."

To fill the order, they needed about $15,000 worth of parts. Allen Baum, the third prankster from Homestead High, and his father agreed to loan them $5,000. Jobs tried to borrow more from a bank in Los Altos, but the manager looked at him and, not surprisingly, declined. He went to Haltek Supply and offered an equity stake in Apple in return for the parts, but the owner decided they were "a couple of young, scruffy-looking guys," and declined. Alcorn at Atari would sell them chips only if they paid cash up front. Finally, Jobs was able to convince the manager of Cramer Electronics to call Paul Terrell to confirm that he had really committed to a $25,000 order. Terrell was at a conference when he heard over a loudspeaker that he had an emergency call (Jobs had been persistent). The Cramer manager told him that two scruffy kids had just walked in waving an order from the Byte Shop. Was it real? Terrell confirmed that it was, and the store agreed to front Jobs the parts on thirty-day credit.

Garage Band

The Jobs house in Los Altos became the assembly point for the fifty Apple I boards that had to be delivered to the Byte Shop within thirty days, when the payment for the parts would come due. All available hands were enlisted: Jobs and Wozniak, plus Daniel Kottke, his ex-girlfriend Elizabeth Holmes (who had broken away from the cult she'd joined), and Jobs's pregnant sister, Patty. Her vacated bedroom as well as the kitchen table and garage were commandeered as work space. Holmes, who had taken jewelry classes, was given the task of soldering chips. "Most I did well, but I got flux on a few of them," she recalled. This didn't please Jobs. "We don't have a chip to spare," he railed, correctly. He shifted her to bookkeeping and paperwork at the kitchen table, and he did the soldering himself. When they completed a board, they would hand it off to Wozniak. "I would plug each assembled board into the TV and keyboard to test it to see if it worked," he said.

"If it did, I put it in a box. If it didn't, I'd figure what pin hadn't gotten into the socket right."

Paul Jobs suspended his sideline of repairing old cars so that the Apple team could have the whole garage. He put in a long old workbench, hung a schematic of the computer on the new plasterboard wall he built, and set up rows of labeled drawers for the components. He also built a burn box bathed in heat lamps so the computer boards could be tested by running overnight at high temperatures. When there was the occasional eruption of temper, an occurrence not uncommon around his son, Paul would impart some of his calm. "What's the matter?" he would say. "You got a feather up your ass?" In return he occasionally asked to borrow back the TV set so he could watch the end of a football game. During some of these breaks, Jobs and Kottke would go outside and play guitar on the lawn.

Clara Jobs didn't mind losing most of her house to piles of parts and houseguests, but she was frustrated by her son's increasingly quirky diets. "She would roll her eyes at his latest eating obsessions," recalled Holmes. "She just wanted him to be healthy, and he would be making weird pronouncements like, 'I'm a fruitarian and I will only eat leaves picked by virgins in the moonlight.' "

After a dozen assembled boards had been approved by Wozniak, Jobs drove them over to the Byte Shop. Terrell was a bit taken aback. There was no power supply, case, monitor, or keyboard. He had expected something more finished. But Jobs stared him down, and he agreed to take delivery and pay.

After thirty days Apple was on the verge of being profitable. "We were able to build the boards more cheaply than we thought, because I got a good deal on parts," Jobs recalled. "So the fifty we sold to the Byte Shop almost paid for all the material we needed to make a hundred boards." Now they could make a real profit by selling the remaining fifty to their friends and Homebrew compatriots.

Elizabeth Holmes officially became the part-time bookkeeper at $4 an hour, driving down from San Francisco once a week and figuring out how to port Jobs's checkbook into a ledger. In order to make Apple seem like a real company, Jobs hired an answering service, which would relay messages to his mother. Ron Wayne drew a logo, using the ornate line-drawing style of Victorian illustrated fiction, that featured Newton sitting under a tree framed by a quote from Wordsworth: "A mind forever voyaging through strange seas of thought, alone." It was a rather odd motto, one that fit Wayne's self-image more than Apple Computer. Perhaps a better Wordsworth line would have been the poet's description of those involved in the start of the French Revolution: "Bliss was it in that dawn to be alive / But to be young was very heaven!" As Wozniak later exulted, "We were participating in the biggest revolution that had ever happened, I thought. I was so happy to be a part of it."

Woz had already begun thinking about the next version of the machine, so they started calling their current model the Apple I. Jobs and Woz would drive up and down Camino Real trying to get the electronics stores to sell it. In addition to the fifty sold by the Byte Shop and almost fifty sold to friends, they were building another hundred for retail outlets. Not surprisingly, they had contradictory impulses: Wozniak wanted to sell them for about what it cost to build them, but Jobs wanted to make a serious profit. Jobs prevailed. He picked a retail price that was about three times what it cost to build the boards and a 33% markup over the $500 wholesale price that Terrell and other stores paid. The result was $666.66. "I was always into repeating digits," Wozniak said. "The phone number for my dial-a-joke service was 255-6666." Neither of them knew that in the Book of Revelation 666 symbolized the "number of the beast," but they soon were faced with complaints, especially after 666 was featured in that year's hit movie, *The Omen*. (In 2010 one of the original Apple I computers was sold at auction by Christie's for $213,000.)

The first feature story on the new machine appeared in the July 1976 issue of *Interface*, a now-defunct hobbyist magazine. Jobs and friends were still making them by hand in his house, but the article referred to him as the director of marketing and "a former private consultant to Atari." It made Apple sound like a real company. "Steve communicates with many of the computer clubs to keep his finger on the heartbeat of this young industry," the article reported, and it quoted him explaining, "If we can rap about their needs, feelings and motivations, we can respond appropriately by giving them what they want."

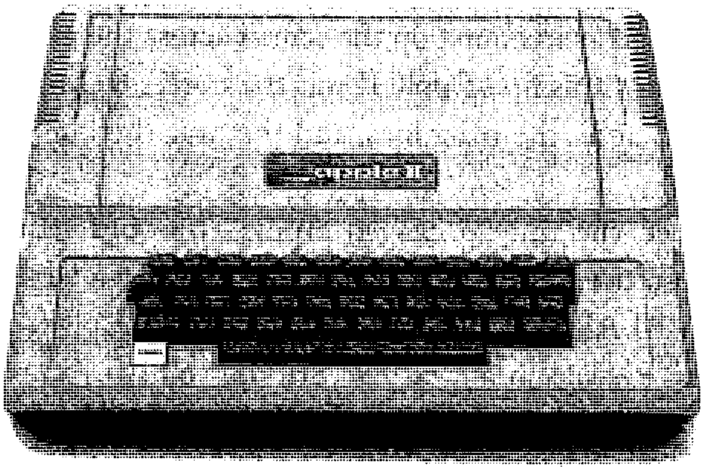
By this time they had other competitors, in addition to the Altair, most notably the IMSAI 8080 and Processor Technology Corporation's SOL-20. The latter was designed by Lee Felsenstein and Gordon French of the Homebrew Computer Club. They all had the chance to go on display during Labor Day weekend of 1976, at the first annual Personal Computer Festival, held in a tired hotel on the decaying boardwalk of Atlantic City, New Jersey. Jobs and Wozniak took a TWA flight to Philadelphia, cradling one cigar box with the Apple I and another with the prototype for the successor that Woz was working on. Sitting in the row behind them was Felsenstein, who looked at the Apple I and pronounced it "thoroughly unimpressive." Wozniak was unnerved by the conversation in the row behind him. "We could hear them talking in advanced business talk," he recalled, "using businesslike acronyms we'd never heard before."

Wozniak spent most of his time in their hotel room, tweaking his new prototype. He was too shy to stand at the card table that Apple had been assigned near the back of the exhibition hall. Daniel Kottke had taken the train down from Manhattan, where he was now attending Columbia, and he manned the table while Jobs walked the floor to inspect the competition. What he saw did not impress him. Wozniak, he felt reassured, was the best circuit engineer, and the Apple I (and surely its successor) could beat the competition in terms of functionality. However, the SOL-20 was better looking. It had a sleek metal case, a keyboard, a power supply, and cables. It looked as if it had been produced by grown-ups. The Apple I, on the other hand, appeared as scruffy as its creators.

CHAPTER SIX

THE APPLE II

Dawn of a New Age



An Integrated Package

As Jobs walked the floor of the Personal Computer Festival, he came to the realization that Paul Terrell of the Byte Shop had been right: Personal computers should come in a complete package. The next Apple, he decided, needed to have a great case and a built-in keyboard, and be integrated end to end, from the power supply to the software. "My vision was to create the first fully packaged computer," he recalled. "We were no longer aiming for the handful of hobbyists who liked to assemble their own computers, who knew how to buy transformers and keyboards. For every one of them there were a thousand people who would want the machine to be ready to run."

In their hotel room on that Labor Day weekend of 1976, Wozniak tinkered with the prototype of the new machine, to be named the Apple II, that Jobs hoped would take them to this next level. They brought the prototype out only once, late at night, to test it on the color projection television in one of the conference rooms. Wozniak had come up with an ingenious way to goose the machine's chips into creating color, and he wanted to see if it would work on the type of television that uses a projector to display on a movie-like screen. "I figured a projector might have a different color circuitry that would choke on my color method," he recalled. "So I hooked up the Apple II to this projector and it worked perfectly." As he typed on his keyboard, colorful lines and swirls burst on the screen across the room. The only outsider who saw this first Apple II was the hotel's technician. He said he had looked at all the machines, and this was the one he would be buying.

To produce the fully packaged Apple II would require significant capital, so they considered selling the rights to a larger company. Jobs went to Al Alcorn and asked for the chance to pitch it to Atari's management. He set up a meeting with the company's president, Joe Keenan, who was a lot more conservative than Alcorn and Bushnell. "Steve goes in to pitch him, but Joe couldn't stand him," Alcorn recalled. "He didn't appreciate Steve's hygiene." Jobs was barefoot, and at one point put his feet up on a desk. "Not only are we not going to buy this thing," Keenan shouted, "but get your feet off my desk!" Alcorn recalled thinking, "Oh, well. There goes that possibility."

In September Chuck Peddle of the Commodore computer company came by the Jobs house to get a demo. "We'd opened Steve's garage to the sunlight, and he came in wearing a suit and a cowboy hat," Wozniak recalled. Peddle loved the Apple II, and he arranged a presentation for his top brass a few weeks later at Commodore headquarters. "You might want to buy us for a few hundred thousand dollars," Jobs said when they got there. Wozniak was stunned by this "ridiculous" suggestion, but Jobs persisted. The Commodore honchos called a few days later to say they had decided it would be cheaper to build their own machine. Jobs was not upset. He had checked out Commodore and decided that its leadership was "sleazy." Wozniak did not rue the lost money, but his engineering sensibilities were offended when the company came out with the Commodore PET nine months later. "It kind of sickened me. They made a real crappy product by doing it so quick. They could have had Apple."

The Commodore flirtation brought to the surface a potential conflict between Jobs and Wozniak: Were they truly equal in what they contributed to Apple and what they should get out of it? Jerry Wozniak, who exalted the value of engineers over mere entrepreneurs and marketers, thought most of the money should be going to his son. He confronted Jobs personally when he came by the Wozniak house. "You don't deserve shit," he told Jobs. "You haven't produced anything." Jobs began to cry, which was not unusual. He had never been, and would never be, adept at containing his emotions. He told Steve Wozniak that he was willing to call off the partnership. "If we're not fifty-fifty," he said to his friend, "you can have the whole thing." Wozniak, however, understood better than his father the symbiosis they had. If it had not been for Jobs, he might still be handing out schematics of his boards for free at the back of Homebrew meetings. It was Jobs who had turned his ingenious designs into a budding business, just as he had with the Blue Box. He agreed they should remain partners.

It was a smart call. To make the Apple II successful required more than just Wozniak's awesome circuit design. It would need to be packaged into a fully integrated consumer product, and that was Jobs's role.

He began by asking their erstwhile partner Ron Wayne to design a case. "I assumed they had no money, so I did one that didn't require any tooling and could be fabricated in a standard metal shop," he said. His design called for a Plexiglas cover attached by metal straps and a rolltop door that slid down over the keyboard.

Jobs didn't like it. He wanted a simple and elegant design, which he hoped would set Apple apart from the other machines, with their clunky gray metal cases. While haunting the appliance aisles at Macy's, he was struck by the Cuisinart food processors and decided that he wanted a sleek case made of light molded plastic. At a Homebrew meeting, he offered a local consultant, Jerry Manock, $1,500 to produce such a design. Manock, dubious about Jobs's appearance, asked for the money up front. Jobs refused, but Manock took the job anyway.

Within weeks he had produced a simple foam-molded plastic case that was uncluttered and exuded friendliness. Jobs was thrilled.

Next came the power supply. Digital geeks like Wozniak paid little attention to something so analog and mundane, but Jobs decided it was a key component. In particular he wanted—as he would his entire career—to provide power in a way that avoided the need for a fan. Fans inside computers were not Zen-like; they distracted. He dropped by Atari to consult with Alcorn, who knew old-fashioned electrical engineering. "Al turned me on to this brilliant guy named Rod Holt, who was a chain-smoking Marxist who had been through many marriages and was an expert on everything," Jobs recalled. Like Manock and others meeting Jobs for the first time, Holt took a look at him and was skeptical. "I'm expensive," Holt said. Jobs sensed he was worth it and said that cost was no problem. "He just conned me into working," said Holt, who ended up joining Apple full-time.

Instead of a conventional linear power supply, Holt built one like those used in oscilloscopes. It switched the power on and off not sixty times per second, but thousands of times; this allowed it to store the power for far less time, and thus throw off less heat. "That switching power supply was as revolutionary as the Apple II logic board was," Jobs later said. "Rod doesn't get a lot of credit for this in the history books, but he should. Every computer now uses switching power supplies, and they all rip off Rod's design." For all of Wozniak's brilliance, this was not something he could have done. "I only knew vaguely what a switching power supply was," Woz admitted.

Jobs's father had once taught him that a drive for perfection meant caring about the craftsmanship even of the parts unseen. Jobs applied that to the layout of the circuit board inside the Apple II. He rejected the initial design because the lines were not straight enough.

This passion for perfection led him to indulge his instinct to control. Most hackers and hobbyists liked to customize, modify, and jack various things into their computers. To Jobs, this was a threat to a seamless end-to-end user experience. Wozniak, a hacker at heart, disagreed. He wanted to include eight slots on the Apple II for users to insert whatever smaller circuit boards and peripherals they might want. Jobs insisted there be only two, for a printer and a modem. "Usually

I'm really easy to get along with, but this time I told him, 'If that's what you want, go get yourself another computer,' " Wozniak recalled. "I knew that people like me would eventually come up with things to add to any computer." Wozniak won the argument that time, but he could sense his power waning. "I was in a position to do that then. I wouldn't always be."

Mike Markkula

All of this required money. "The tooling of this plastic case was going to cost, like, $100,000," Jobs said. "Just to get this whole thing into production was going to be, like, $200,000." He went back to Nolan Bushnell, this time to get him to put in some money and take a minority equity stake. "He asked me if I would put $50,000 in and he would give me a third of the company," said Bushnell. "I was so smart, I said no. It's kind of fun to think about that, when I'm not crying."

Bushnell suggested that Jobs try Don Valentine, a straight-shooting former marketing manager at National Semiconductor who had founded Sequoia Capital, a pioneering venture capital firm. Valentine arrived at the Jobses' garage in a Mercedes wearing a blue suit, button-down shirt, and rep tie. His first impression was that Jobs looked and smelled odd. "Steve was trying to be the embodiment of the counterculture. He had a wispy beard, was very thin, and looked like Ho Chi Minh."

Valentine, however, did not become a preeminent Silicon Valley investor by relying on surface appearances. What bothered him more was that Jobs knew nothing about marketing and seemed content to peddle his product to individual stores one by one. "If you want me to finance you," Valentine told him, "you need to have one person as a partner who understands marketing and distribution and can write a business plan." Jobs tended to be either bristly or solicitous when older people offered him advice. With Valentine he was the latter. "Send me three suggestions," he replied. Valentine did, Jobs met them, and he clicked with one of them, a man named Mike Markkula, who would end up playing a critical role at Apple for the next two decades.

Markkula was only thirty-three, but he had already retired after working at Fairchild and then Intel, where he made millions on his stock options when the chip maker went public. He was a cautious and shrewd man, with the precise moves of someone who had been a gymnast in high school, and he excelled at figuring out pricing strategies, distribution networks, marketing, and finance. Despite being slightly reserved, he had a flashy side when it came to enjoying his newly minted wealth. He built himself a house in Lake Tahoe and later an outsize mansion in the hills of Woodside. When he showed up for his first meeting at Jobs's garage, he was driving not a dark Mercedes like Valentine, but a highly polished gold Corvette convertible. "When I arrived at the garage, Woz was at the workbench and immediately began showing off the Apple II," Markkula recalled. "I looked past the fact that both guys needed a haircut and was amazed by what I saw on that workbench. You can always get a haircut."

Jobs immediately liked Markkula. "He was short and he had been passed over for the top marketing job at Intel, which I suspect made him want to prove himself." He also struck Jobs as decent and fair. "You could tell that if he could screw you, he wouldn't. He had a real moral sense to him." Wozniak was equally impressed. "I thought he was the nicest person ever," he recalled. "Better still, he actually liked what we had!"

Markkula proposed to Jobs that they write a business plan together. "If it comes out well, I'll invest," Markkula said, "and if not, you've got a few weeks of my time for free." Jobs began going to Markkula's house in the evenings, kicking around projections and talking through the night. "We made a lot of assumptions, such as about how many houses would have a personal computer, and there were nights we were up until 4 a.m.," Jobs recalled. Markkula ended up writing most of the plan. "Steve would say, 'I will bring you this section next time,' but he usually didn't deliver on time, so I ended up doing it."

Markkula's plan envisioned ways of getting beyond the hobbyist market. "He talked about introducing the computer to regular people in regular homes, doing things like keeping track of your favorite recipes or balancing your checkbook," Wozniak recalled. Markkula made a wild prediction: "We're going to be a Fortune 500 company in two years," he said. "This is the start of an industry. It happens once in a decade." It would take Apple seven years to break into the Fortune 500, but the spirit of Markkula's prediction turned out to be true.

Markkula offered to guarantee a line of credit of up to $250,000 in return for being made a one-third equity participant. Apple would incorporate, and he along with Jobs and Wozniak would each own 26% of the stock. The rest would be reserved to attract future investors. The three met in the cabana by Markkula's swimming pool and sealed the deal. "I thought it was unlikely that Mike would ever see that $250,000 again, and I was impressed that he was willing to risk it," Jobs recalled.

Now it was necessary to convince Wozniak to come on board full-time. "Why can't I keep doing this on the side and just have HP as my secure job for life?" he asked. Markkula said that wouldn't work, and he gave Wozniak a deadline of a few days to decide. "I felt very insecure in starting a company where I would be expected to push people around and control what they did," Wozniak recalled. "I'd decided long ago that I would never become someone authoritative." So he went to Markkula's cabana and announced that he was not leaving HP.

Markkula shrugged and said okay. But Jobs got very upset. He cajoled Wozniak; he got friends to try to convince him; he cried, yelled, and threw a couple of fits. He even went to Wozniak's parents' house, burst into tears, and asked Jerry for help. By this point Wozniak's father had realized there was real money to be made by capitalizing on the Apple II, and he joined forces on Jobs's behalf. "I started getting phone calls at work and home from my dad, my mom, my brother, and various friends," Wozniak recalled. "Every one of them told me I'd made the wrong decision." None of that worked. Then Allen Baum, their Buck Fry Club mate at Homestead High, called. "You really ought to go ahead and do it," he said. He argued that if he joined Apple full-time, he would not have to go into management or give up being an engineer. "That was exactly what I needed to hear," Wozniak later said. "I could stay at the bottom of the organization chart, as an engineer." He called Jobs and declared that he was now ready to come on board.

On January 3, 1977, the new corporation, the Apple Computer Co., was officially created, and it bought out the old partnership that had been formed by Jobs and Wozniak nine months earlier. Few people noticed. That month the Homebrew surveyed its members and found that, of the 181 who owned personal computers, only six owned an Apple. Jobs was convinced, however, that the Apple II would change that.

Markkula would become a father figure to Jobs. Like Jobs's adoptive father, he would indulge Jobs's strong will, and like his biological father, he would end up abandoning him. "Markkula was as much a father-son relationship as Steve ever had," said the venture capitalist Arthur Rock. He began to teach Jobs about marketing and sales. "Mike really took me under his wing," Jobs recalled. "His values were much aligned with mine. He emphasized that you should never start a company with the goal of getting rich. Your goal should be making something you believe in and making a company that will last."

Markkula wrote his principles in a one-page paper titled "The Apple Marketing Philosophy" that stressed three points. The first was *empathy*, an intimate connection with the feelings of the customer: "We will truly understand their needs better than any other company." The second was *focus*: "In order to do a good job of those things that we decide to do, we must eliminate all of the unimportant opportunities." The third and equally important principle, awkwardly named, was *impute*. It emphasized that people form an opinion about a company or product based on the signals that it conveys. "People *DO* judge a book by its cover," he wrote. "We may have the best product, the highest quality, the most useful software etc.; if we present them in a slipshod manner, they will be perceived as slipshod; if we present them in a creative, professional manner, we will *impute* the desired qualities."

For the rest of his career, Jobs would understand the needs and desires of customers better than any other business leader, he would focus on a handful of core products, and he would care, sometimes obsessively, about marketing and image and even the details of packaging. "When you open the box of an iPhone or iPad, we want that tactile experience to set the tone for how you perceive the product," he said. "Mike taught me that."

Regis McKenna

The first step in this process was convincing the Valley's premier publicist, Regis McKenna, to take on Apple as a client. McKenna was from a large working-class Pittsburgh family, and bred into his bones was a steeliness that he cloaked with charm. A college dropout, he had worked for Fairchild and National Semiconductor before starting his own PR and advertising firm. His two specialties were doling out exclusive interviews with his clients to journalists he had cultivated and coming up with memorable ad campaigns that created brand awareness for products such as microchips. One of these was a series of colorful magazine ads for Intel that featured racing cars and poker chips rather than the usual dull performance charts. These caught Jobs's eye. He called Intel and asked who created them. "Regis McKenna," he was told. "I asked them what Regis McKenna was," Jobs recalled, "and they told me he was a person." When Jobs phoned, he couldn't get through to McKenna. Instead he was transferred to Frank Burge, an account executive, who tried to put him off. Jobs called back almost every day.

Burge finally agreed to drive out to the Jobs garage. "Holy Christ, this guy is going to be something else," he recalled thinking. "What's the least amount of time I can spend with this clown without being rude." Then, when he was confronted with the unwashed and shaggy Jobs, two things hit him: "First, he was an incredibly smart young man. Second, I didn't understand a fiftieth of what he was talking about."

So Jobs and Wozniak were invited to have a meeting with, as his impish business cards read, "Regis McKenna, himself." This time it was the normally shy Wozniak who became prickly. McKenna glanced at an article Wozniak was writing about Apple and suggested that it was too technical and needed to be livened up. "I don't want any PR man touching my copy," Wozniak snapped. McKenna suggested it was time for them to leave his office. "But Steve called me back right away and said he wanted to meet again," McKenna recalled. "This time he came without Woz, and we hit it off."

McKenna had his team get to work on brochures for the Apple II. The first thing they did was to replace Ron Wayne's ornate Victorian woodcut-style logo, which ran counter to McKenna's colorful and playful advertising style. So an art director, Rob Janoff, was assigned to create a new one. "Don't make it cute," Jobs ordered. Janoff came up with a simple apple shape in two versions, one whole and the other with a bite taken out of it. The first looked too much like a cherry, so Jobs chose the one with a bite. He also picked a version that was striped in six colors, with psychedelic hues sandwiched between whole-earth green and sky blue, even though that made printing the logo significantly more expensive. Atop the brochure McKenna put a maxim, often attributed to Leonardo da Vinci, that would become the defining precept of Jobs's design philosophy: "Simplicity is the ultimate sophistication."

The First Launch Event

The introduction of the Apple II was scheduled to coincide with the first West Coast Computer Faire, to be held in April 1977 in San Francisco, organized by a Homebrew stalwart, Jim Warren. Jobs signed Apple up for a booth as soon as he got the information packet. He wanted to secure a location right at the front of the hall as a dramatic way to launch the Apple II, and so he shocked Wozniak by paying $5,000 in advance. "Steve decided that this was our big launch," said Wozniak. "We would show the world we had a great machine and a great company."

It was an application of Markkula's admonition that it was important to "impute" your greatness by making a memorable impression on people, especially when launching a new product. That was reflected in the care that Jobs took with Apple's display area. Other exhibitors had card tables and poster board signs. Apple had a counter draped in black velvet and a large pane of backlit Plexiglas with Janoff's new logo. They put on display the only three Apple IIs that had been finished, but empty boxes were piled up to give the impression that there were many more on hand.

Jobs was furious that the computer cases had arrived with tiny blemishes on them, so he had his handful of employees sand and polish them. The imputing even extended to gussying up Jobs and Wozniak. Markkula sent them to a San Francisco tailor for three-piece suits, which looked faintly ridiculous on them, like tuxes on teenagers. "Markkula explained how we would all have to dress up nicely, how we should appear and look, how we should act," Wozniak recalled.

It was worth the effort. The Apple II looked solid yet friendly in its sleek beige case, unlike the intimidating metal-clad machines and naked boards on the other tables. Apple got three hundred orders at the show, and Jobs met a Japanese textile maker, Mizushima Satoshi, who became Apple's first dealer in Japan.

The fancy clothes and Markkula's injunctions could not, however, stop the irrepressible Wozniak from playing some practical jokes. One program that he displayed tried to guess people's nationality from their last name and then produced the relevant ethnic jokes. He also created and distributed a hoax brochure for a new computer called the "Zaltair," with all sorts of fake ad-copy superlatives like "Imagine a car with five wheels." Jobs briefly fell for the joke and even took pride that the Apple II stacked up well against the Zaltair in the comparison chart. He didn't realize who had pulled the prank until eight years later, when Woz gave him a framed copy of the brochure as a birthday gift.

Mike Scott

Apple was now a real company, with a dozen employees, a line of credit, and the daily pressures that can come from customers and suppliers. It had even moved out of the Jobses' garage, finally, into a rented office on Stevens Creek Boulevard in Cupertino, about a mile from where Jobs and Wozniak went to high school.

Jobs did not wear his growing responsibilities gracefully. He had always been temperamental and bratty. At Atari his behavior had caused him to be banished to the night shift, but at Apple that was not possible. "He became increasingly tyrannical and sharp in his criticism," according to Markkula. "He would tell people, 'That design looks like shit.' " He was particularly rough on Wozniak's young programmers, Randy Wigginton and Chris Espinosa. "Steve would come in, take a quick look at what I had done, and tell me it was shit without having any idea what it was or why I had done it," said Wigginton, who was just out of high school.

There was also the issue of his hygiene. He was still convinced, against all evidence, that his vegan diets meant that he didn't need to use a deodorant or take regular showers. "We would have to literally put him out the door and tell him to go take a shower," said Markkula. "At meetings we had to look at his dirty feet." Sometimes, to relieve stress, he would soak his feet in the toilet, a practice that was not as soothing for his colleagues.

Markkula was averse to confrontation, so he decided to bring in a president, Mike Scott, to keep a tighter rein on Jobs. Markkula and Scott had joined Fairchild on the same day in 1967, had adjoining offices, and shared the same birthday, which they celebrated together each year. At their birthday lunch in February 1977, when Scott was turning thirty-two, Markkula invited him to become Apple's new president.

On paper he looked like a great choice. He was running a manufacturing line for National Semiconductor, and he had the advantage of being a manager who fully understood engineering. In person, however, he had some quirks. He was overweight, afflicted with tics and health problems, and so tightly wound that he wandered the halls with clenched fists. He also could be argumentative. In dealing with Jobs, that could be good or bad.

Wozniak quickly embraced the idea of hiring Scott. Like Markkula, he hated dealing with the conflicts that Jobs engendered. Jobs, not surprisingly, had more conflicted emotions. "I was only twenty-two, and I knew I wasn't ready to run a real company," he said. "But Apple was my baby, and I didn't want to give it up." Relinquishing any control was agonizing to him. He wrestled with the issue over long lunches at Bob's Big Boy hamburgers (Woz's favorite place) and at the Good Earth restaurant (Jobs's). He finally acquiesced, reluctantly.

Mike Scott, called "Scotty" to distinguish him from Mike Markkula, had one primary duty: managing Jobs. This was usually accomplished by Jobs's preferred mode of meeting, which was taking a walk together. "My very first walk was to tell him to bathe more often," Scott recalled. "He said that in exchange I had to read his fruitarian diet book and consider it as a way to lose weight." Scott never adopted the diet or lost much weight, and Jobs made only minor modifications to his hygiene. "Steve was adamant that he bathed once a week, and that was adequate as long as he was eating a fruitarian diet."

Jobs's desire for control and disdain for authority was destined to be a problem with the man who was brought in to be his regent, especially when Jobs discovered that Scott was one of the only people he had yet encountered who would not bend to his will. "The question between Steve and me was who could be most stubborn, and I was pretty good at that," Scott said. "He needed to be sat on, and he sure didn't like that." Jobs later said, "I never yelled at anyone more than I yelled at Scotty."

An early showdown came over employee badge numbers. Scott assigned #1 to Wozniak and #2 to Jobs. Not surprisingly, Jobs demanded to be #1. "I wouldn't let him have it, because that would stoke his ego even more," said Scott. Jobs threw a tantrum, even cried. Finally, he proposed a solution. He would have badge #0. Scott relented, at least for the purpose of the badge, but the Bank of America required a positive integer for its payroll system and Jobs's remained #2.

There was a more fundamental disagreement that went beyond personal petulance. Jay Elliot, who was hired by Jobs after a chance meeting in a restaurant, noted Jobs's salient trait: "His obsession is a passion for the product, a passion for product perfection." Mike Scott, on the other hand, never let a passion for the perfect take precedence over pragmatism. The design of the Apple II case was one of many examples. The Pantone company, which Apple used to specify colors for its plastic, had more than two thousand shades of beige. "None of them were good enough for Steve," Scott marveled. "He wanted to create a different shade, and I had to stop him." When the time came to tweak the design of the case, Jobs spent days agonizing over just how rounded the corners should be. "I didn't care how rounded they were," said Scott, "I just wanted it decided." Another dispute was over engineering benches. Scott wanted a standard gray; Jobs insisted on special-order benches that were pure white. All of this finally led to a showdown in front of Markkula about whether Jobs or Scott had the power to sign purchase orders; Markkula sided with Scott. Jobs also insisted that Apple be different in how it treated customers. He wanted a one-year warranty to come with the Apple II. This flabbergasted Scott; the usual warranty was ninety days. Again Jobs dissolved into tears during one of their arguments over the issue. They walked around the parking lot to calm down, and Scott decided to relent on this one.

Wozniak began to rankle at Jobs's style. "Steve was too tough on people. I wanted our company to feel like a family where we all had fun and shared whatever we made." Jobs, for his part, felt that Wozniak simply would not grow up. "He was very childlike. He did a great version of BASIC, but then never could buckle down and write the floating-point BASIC we needed, so we ended up later having to make a deal with Microsoft. He was just too unfocused."

But for the time being the personality clashes were manageable, mainly because the company was doing so well. Ben Rosen, the analyst whose newsletters shaped the opinions of the tech world, became an enthusiastic proselytizer for the Apple II. An independent developer came up with the first spreadsheet and personal finance program for personal computers, VisiCalc, and for a while it was available only on the Apple II, turning the computer into something that businesses and families could justify buying. The company began attracting influential new investors. The pioneering venture capitalist Arthur Rock had initially been unimpressed when Markkula sent Jobs to see him. "He looked as if he had just come back from seeing that guru he had in India," Rock recalled, "and he kind of smelled that way too." But after Rock scoped out the Apple II, he made an investment and joined the board.

The Apple II would be marketed, in various models, for the next sixteen years, with close to six million sold. More than any other machine, it launched the personal computer industry. Wozniak deserves the historic credit for the design of its awe-inspiring circuit board and related operating software, which was one of the era's great feats of solo invention. But Jobs was the one who integrated Wozniak's boards into a friendly package, from the power supply to the sleek case. He also created the company that sprang up around Wozniak's machines.

As Regis McKenna later said, “Woz designed a great machine, but it would be sitting in hobby shops today were it not for Steve Jobs.” Nevertheless most people considered the Apple II to be Wozniak’s creation. That would spur Jobs to pursue the next great advance, one that he could call his own.

CHAPTER SEVEN

CHRISANN AND LISA

He Who Is Abandoned . . .

Ever since they had lived together in a cabin during the summer after he graduated from high school, Chrisann Brennan had woven in and out of Jobs's life. When he returned from India in 1974, they spent time together at Robert Friedland's farm. "Steve invited me up there, and we were just young and easy and free," she recalled. "There was an energy there that went to my heart."

When they moved back to Los Altos, their relationship drifted into being, for the most part, merely friendly. He lived at home and worked at Atari; she had a small apartment and spent a lot of time at Kobun Chino's Zen center. By early 1975 she had begun a relationship with a mutual friend, Greg Calhoun. "She was with Greg, but went back to Steve occasionally," according to Elizabeth Holmes. "That was pretty much the way it was with all of us. We were sort of shifting back and forth; it was the seventies, after all."

Calhoun had been at Reed with Jobs, Friedland, Kottke, and Holmes. Like the others, he became deeply involved with Eastern spirituality, dropped out of Reed, and found his way to Friedland's farm. There he moved into an eight- by twenty-foot chicken coop that he converted into a little house by raising it onto cinderblocks and building a sleeping loft inside. In the spring of 1975 Brennan moved in with him, and the next year they decided to make their own pilgrimage to India. Jobs advised Calhoun not to take Brennan with him, saying that she would interfere with his spiritual quest, but they went together anyway. "I was just so impressed by what happened to Steve on his trip to India that I wanted to go there," she said.

Theirs was a serious trip, beginning in March 1976 and lasting almost a year. At one point they ran out of money, so Calhoun hitchhiked to Iran to teach English in Tehran. Brennan stayed in India, and when Calhoun's teaching stint was over they hitchhiked to meet each other in the middle, in Afghanistan. The world was a very different place back then.

After a while their relationship frayed, and they returned from India separately. By the summer of 1977 Brennan had moved back to Los Altos, where she lived for a while in a tent on the grounds of Kobun Chino's Zen center. By this time Jobs had moved out of his parents' house and was renting a $600 per month suburban ranch house in Cupertino with Daniel Kottke. It was an odd scene of free-spirited hippie types living in a tract house they dubbed Rancho Suburbia. "It was a four-bedroom house, and we occasionally rented one of the bedrooms out to all sorts of crazy people, including a stripper for a while," recalled Jobs. Kottke couldn't quite figure out why Jobs had not just gotten his own house, which he could have afforded by then. "I think he just wanted to have a roommate," Kottke speculated.

Even though her relationship with Jobs was sporadic, Brennan soon moved in as well. This made for a set of living arrangements worthy of a French farce. The house had two big bedrooms and two tiny ones. Jobs, not surprisingly, commandeered the largest of them, and Brennan (who was not really living with him) moved into the other big bedroom. "The two middle rooms were like for babies, and I didn't want either of them, so I moved into the living room and slept on a foam pad," said Kottke. They turned one of the small rooms into space for meditating and dropping acid, like the attic space they had used at Reed. It was filled with foam packing material from Apple boxes. "Neighborhood kids used to come over and we would toss them in it and it was great fun," said Kottke, "but then Chrisann brought home some cats who peed in the foam, and then we had to get rid of it."

Living in the house at times rekindled the physical relationship between Brennan and Jobs, and within a few months she was pregnant. "Steve and I were in and out of a relationship for five years before I got pregnant," she said. "We didn't know how to be together and we didn't know how to be apart." When Greg Calhoun hitchhiked from Colorado to visit them on Thanksgiving 1977, Brennan told him the news: "Steve and I got back together, and now I'm pregnant, but now we are on again and off again, and I don't know what to do."

Calhoun noticed that Jobs was disconnected from the whole situation. He even tried to convince Calhoun to stay with them and come to work at Apple. "Steve was just not dealing with Chrisann or the pregnancy," he recalled. "He could be very engaged with you in one moment, but then very disengaged. There was a side to him that was frighteningly cold."

When Jobs did not want to deal with a distraction, he sometimes just ignored it, as if he could will it out of existence. At times he was able to distort reality not just for others but even for himself. In the case of Brennan's pregnancy, he simply shut it out of his mind. When confronted, he would deny that he knew he was the father, even though he admitted that he had been sleeping with her. "I wasn't sure it was my kid, because I was pretty sure I wasn't the only one she was sleeping with," he told me later. "She and I were not really even going out when she got pregnant. She just had a room in our house." Brennan had no doubt that Jobs was the father. She had not been involved with Greg or any other men at the time.

Was he lying to himself, or did he not know that he was the father? "I just think he couldn't access that part of his brain or the idea of being responsible," Kottke said. Elizabeth Holmes agreed: "He considered the option of parenthood and considered the option of not being a parent, and he decided to believe the latter. He had other plans for his life."

There was no discussion of marriage. "I knew that she was not the person I wanted to marry, and we would never be happy, and it wouldn't last long," Jobs later said. "I was all in favor of her getting an abortion, but she didn't know what to do. She thought about it repeatedly and decided not to, or I don't know that she ever really decided—I think time just decided for her." Brennan told me that it was her choice to have the baby: "He said he was fine with an abortion but never pushed for it." Interestingly, given his own background, he was adamantly against one option. "He strongly discouraged me putting the child up for adoption," she said.

There was a disturbing irony. Jobs and Brennan were both twenty-three, the same age that Joanne Schieble and Abdulfattah Jandali had been when they had Jobs. He had not yet tracked down his biological parents, but his adoptive parents had told him some of their tale. "I didn't know then about this coincidence of our ages, so it didn't affect my discussions with Chrisann," he later said. He dismissed the notion that he was somehow following his biological father's pattern of getting his girlfriend pregnant when he was twenty-three, but he did admit that the ironic resonance gave him pause. "When I did find out that he was twenty-three when he got Joanne pregnant with me, I thought, whoa!"

The relationship between Jobs and Brennan quickly deteriorated. "Chrisann would get into this kind of victim mode, when she would say that Steve and I were ganging up on her," Kottke recalled. "Steve would just laugh and not take her seriously." Brennan was not, as even she later admitted, very emotionally stable. She began breaking plates, throwing things, trashing the house, and writing obscene words in charcoal on the wall. She said that Jobs kept provoking her with his callousness: "He was an enlightened being who was cruel." Kottke was caught in the middle. "Daniel didn't have that DNA of ruthlessness, so he was a bit flipped by Steve's behavior," according to Brennan. "He would go from 'Steve's not treating you right' to laughing at me with Steve."

Robert Friedland came to her rescue. "He heard that I was pregnant, and he said to come on up to the farm to have the baby," she recalled. "So I did." Elizabeth Holmes and other friends were still living there, and they found an Oregon midwife to help with the delivery. On May 17, 1978, Brennan gave birth to a baby girl. Three days later Jobs flew up to be with them and help name the new baby. The practice on the commune was to give children Eastern spiritual names, but Jobs insisted that she had been born in America and ought to have a name that fit. Brennan agreed. They named her Lisa Nicole Brennan, not giving her the last name Jobs. And then he left to go back to work at Apple. "He didn't want to have anything to do with her or with me," said Brennan.

She and Lisa moved to a tiny, dilapidated house in back of a home in Menlo Park. They lived on welfare because Brennan did not feel up to suing for child support. Finally, the County of San Mateo sued Jobs to try to prove paternity and get him to take financial responsibility. At first Jobs was determined to fight the case. His lawyers wanted Kottke to testify that he had never seen them in bed together, and they tried to line up evidence that Brennan had been sleeping with other men. "At one point I yelled at Steve on the phone, 'You know that is not true,'" Brennan recalled. "He was going to drag me through court with a little baby and try to prove I was a whore and that anyone could have been the father of that baby."

A year after Lisa was born, Jobs agreed to take a paternity test. Brennan's family was surprised, but Jobs knew that Apple would soon be going public and he decided it was best to get the issue resolved. DNA tests were new, and the one that Jobs took was done at UCLA. "I had read about DNA testing, and I was happy to do it to get things settled," he said. The results were pretty dispositive. "Probability of paternity . . . is 94.41%," the report read. The California courts ordered Jobs to start paying $385 a month in child support, sign an agreement admitting paternity, and reimburse the county $5,856 in back welfare payments. He was given visitation rights but for a long time didn't exercise them.

Even then Jobs continued at times to warp the reality around him. "He finally told us on the board," Arthur Rock recalled, "but he kept insisting that there was a large probability that he wasn't the father. He was delusional." He told a reporter for *Time*, Michael Moritz, that when you analyzed the statistics, it was clear that "28% of the male population in the United States could be the father." It was not only a false claim but an odd one. Worse yet, when Chrisann Brennan later heard what he said, she mistakenly thought that Jobs was hyperbolically claiming that she might have slept with 28% of the men in the United States. "He was trying to paint me as a slut or a whore," she recalled. "He spun the whore image onto me in order to not take responsibility."

Years later Jobs was remorseful for the way he behaved, one of the few times in his life he admitted as much:

> I wish I had handled it differently. I could not see myself as a father then, so I didn't face up to it. But when the test results showed she was my daughter, it's not true that I doubted it. I agreed to support her until she was eighteen and give some money to Chrisann as well. I found a house in Palo Alto and fixed it up and let them live there rent-free. Her mother found her great schools which I paid for. I tried to do the right thing. But if I could do it over, I would do a better job.

Once the case was resolved, Jobs began to move on with his life—maturing in some respects, though not all. He put aside drugs, eased away from being a strict vegan, and cut back the time he spent on Zen retreats. He began getting stylish haircuts and buying suits and shirts from the upscale San Francisco haberdashery Wilkes Bashford. And he settled into a serious relationship with one of Regis McKenna's employees, a beautiful Polynesian-Polish woman named Barbara Jasinski.

There was still, to be sure, a childlike rebellious streak in him. He, Jasinski, and Kottke liked to go skinny-dipping in Felt Lake on the edge of Interstate 280 near Stanford, and he bought a 1966 BMW R60/2 motorcycle that he adorned with orange tassels on the handlebars. He could also still be bratty. He belittled waitresses and frequently returned food with the proclamation that it was "garbage." At the company's first Halloween party, in 1979, he dressed in robes as Jesus Christ, an act of semi-ironic self-awareness that he considered funny but that caused a lot of eye rolling. Even his initial stirrings of domesticity had some quirks. He bought a proper house in the Los Gatos hills, which he adorned with a Maxfield Parrish painting, a Braun coffeemaker, and Henckels knives. But because he was so obsessive when it came to selecting furnishings, it remained mostly barren, lacking beds or chairs or couches. Instead his bedroom had a mattress in the center, framed pictures of Einstein and Maharaj-ji on the walls, and an Apple II on the floor.

CHAPTER EIGHT

XEROX AND LISA

Graphical User Interfaces

A New Baby

The Apple II took the company from Jobs's garage to the pinnacle of a new industry. Its sales rose dramatically, from 2,500 units in 1977 to 210,000 in 1981. But Jobs was restless. The Apple II could not remain successful forever, and he knew that, no matter how much he had done to package it, from power cord to case, it would always be seen as Wozniak's masterpiece. He needed his own machine. More than that, he wanted a product that would, in his words, make a dent in the universe.

At first he hoped that the Apple III would play that role. It would have more memory, the screen would display eighty characters across rather than forty, and it would handle uppercase and lowercase letters. Indulging his passion for industrial design, Jobs decreed the size and shape of the external case, and he refused to let anyone alter it, even as committees of engineers added more components to the circuit boards. The result was piggybacked boards with poor connectors that frequently failed. When the Apple III began shipping in May 1980, it flopped. Randy Wigginton, one of the engineers, summed it up: "The Apple III was kind of like a baby conceived during a group orgy, and later everybody had this bad headache, and there's this bastard child, and everyone says, 'It's not mine.' "

By then Jobs had distanced himself from the Apple III and was thrashing about for ways to produce something more radically different. At first he flirted with the idea of touchscreens, but he found himself frustrated. At one demonstration of the technology, he arrived late, fidgeted awhile, then abruptly cut off the engineers in the middle of their presentation with a brusque "Thank you." They were confused. "Would you like us to leave?" one asked. Jobs said yes, then berated his colleagues for wasting his time.

Then he and Apple hired two engineers from Hewlett-Packard to conceive a totally new computer. The name Jobs chose for it would have caused even the most jaded psychiatrist to do a double take: the Lisa. Other computers had been named after daughters of their designers, but Lisa was a daughter Jobs had abandoned and had not yet fully admitted was his. "Maybe he was doing it out of guilt," said Andrea Cunningham, who worked at Regis McKenna on public relations for the project. "We had to come up with an acronym so that we could claim it was not named after Lisa the child." The one they reverse-engineered was "local integrated systems architecture," and despite being meaningless it became the official explanation for the name. Among the engineers it was referred to as "Lisa: invented stupid acronym." Years later, when I asked about the name, Jobs admitted simply, "Obviously it was named for my daughter."

The Lisa was conceived as a $2,000 machine based on a sixteen-bit microprocessor, rather than the eight-bit one used in the Apple II. Without the wizardry of Wozniak, who was still working quietly on the Apple II, the engineers began producing a straightforward computer with a conventional text display, unable to push the powerful microprocessor to do much exciting stuff. Jobs began to grow impatient with how boring it was turning out to be.

There was, however, one programmer who was infusing the project with some life: Bill Atkinson. He was a doctoral student in neuroscience who had experimented with his fair share of acid. When he was asked to come work for Apple, he declined. But then Apple sent him a nonrefundable plane ticket, and he decided to use it and let Jobs try to persuade him. "We are inventing the future," Jobs told him at the end of a three-hour pitch. "Think about surfing on the front edge of a wave. It's really exhilarating. Now think about dog-paddling at the tail end of that wave. It wouldn't be anywhere near as much fun. Come down here and make a dent in the universe." Atkinson did.

With his shaggy hair and droopy moustache that did not hide the animation in his face, Atkinson had some of Woz's ingenuity along with Jobs's passion for awesome products. His first job was to develop a program to track a stock portfolio by auto-dialing the Dow Jones service, getting quotes, then hanging up. "I had to create it fast because there was a magazine ad for the Apple II showing a hubby at the kitchen table looking at an Apple screen filled with graphs of stock prices, and his wife is beaming at him—but there wasn't such a program, so I had to create one." Next he created for the Apple II a version of Pascal, a high-level programming language. Jobs had resisted, thinking that BASIC was all the Apple II needed, but he told Atkinson, "Since you're so passionate about it, I'll give you six days to prove me wrong." He did, and Jobs respected him ever after.

By the fall of 1979 Apple was breeding three ponies to be potential successors to the Apple II workhorse. There was the ill-fated Apple III. There was the Lisa project, which was beginning to disappoint Jobs. And somewhere off Jobs's radar screen, at least for the moment, there was a small skunkworks project for a low-cost machine that was being developed by a colorful employee named Jef Raskin, a former professor who had taught Bill Atkinson. Raskin's goal was to make an inexpensive "computer for the masses" that would be like an appliance—a self-contained unit with computer, keyboard, monitor, and software all together—and have a graphical interface. He tried to turn his colleagues at Apple on to a cutting-edge research center, right in Palo Alto, that was pioneering such ideas.

Xerox PARC

The Xerox Corporation's Palo Alto Research Center, known as Xerox PARC, had been established in 1970 to create a spawning ground for digital ideas. It was safely located, for better and for worse, three thousand miles from the commercial pressures of Xerox corporate headquarters in Connecticut. Among its visionaries was the scientist Alan Kay, who had two great maxims that Jobs embraced: "The best way to predict the future is to invent it" and "People who are serious about software should make their own hardware." Kay pushed the vision of a small personal computer, dubbed the "Dynabook," that would be easy enough for children to use. So Xerox PARC's engineers began to develop user-friendly graphics that could replace all of the command lines and DOS prompts that made computer screens intimidating. The metaphor they came up with was that of a desktop. The screen could have many documents and folders on it, and you could use a mouse to point and click on the one you wanted to use.

This graphical user interface—or GUI, pronounced "gooey"—was facilitated by another concept pioneered at Xerox PARC: bitmapping. Until then, most computers were character-based. You would type a character on a keyboard, and the computer would generate that character on the screen, usually in glowing greenish phosphor against a dark background. Since there were a limited number of letters, numerals, and symbols, it didn't take a whole lot of computer code or processing power to accomplish this. In a bitmap system, on the other hand, each and every pixel on the screen is controlled by bits in the computer's memory. To render something on the screen, such as a letter, the computer has to tell each pixel to be light or dark or, in the case of color displays, what color to be. This uses a lot of computing power, but it permits gorgeous graphics, fonts, and gee-whiz screen displays.

Bitmapping and graphical interfaces became features of Xerox PARC's prototype computers, such as the Alto, and its object-oriented programming language, Smalltalk. Jef Raskin decided that these features were the future of computing. So he began urging Jobs and other Apple colleagues to go check out Xerox PARC.

Raskin had one problem: Jobs regarded him as an insufferable theorist or, to use Jobs's own more precise terminology, "a shithead who sucks." So Raskin enlisted his friend Atkinson, who fell on the other side of Jobs's shithead/genius division of the world, to convince Jobs to take an interest in what was happening at Xerox PARC. What

Raskin didn't know was that Jobs was working on a more complex deal. Xerox's venture capital division wanted to be part of the second round of Apple financing during the summer of 1979. Jobs made an offer: "I will let you invest a million dollars in Apple if you will open the kimono at PARC." Xerox accepted. It agreed to show Apple its new technology and in return got to buy 100,000 shares at about $10 each.

By the time Apple went public a year later, Xerox's $1 million worth of shares were worth $17.6 million. But Apple got the better end of the bargain. Jobs and his colleagues went to see Xerox PARC's technology in December 1979 and, when Jobs realized he hadn't been shown enough, got an even fuller demonstration a few days later. Larry Tesler was one of the Xerox scientists called upon to do the briefings, and he was thrilled to show off the work that his bosses back east had never seemed to appreciate. But the other briefer, Adele Goldberg, was appalled that her company seemed willing to give away its crown jewels. "It was incredibly stupid, completely nuts, and I fought to prevent giving Jobs much of anything," she recalled.

Goldberg got her way at the first briefing. Jobs, Raskin, and the Lisa team leader John Couch were ushered into the main lobby, where a Xerox Alto had been set up. "It was a very controlled show of a few applications, primarily a word-processing one," Goldberg said. Jobs wasn't satisfied, and he called Xerox headquarters demanding more.

So he was invited back a few days later, and this time he brought a larger team that included Bill Atkinson and Bruce Horn, an Apple programmer who had worked at Xerox PARC. They both knew what to look for. "When I arrived at work, there was a lot of commotion, and I was told that Jobs and a bunch of his programmers were in the conference room," said Goldberg. One of her engineers was trying to keep them entertained with more displays of the word-processing program. But Jobs was growing impatient. "Let's stop this bullshit!" he kept shouting. So the Xerox folks huddled privately and decided to open the kimono a bit more, but only slowly. They agreed that Tesler could show off Smalltalk, the programming language, but he would demonstrate only what was known as the "unclassified" version. "It will dazzle [Jobs] and he'll never know he didn't get the confidential disclosure," the head of the team told Goldberg.

They were wrong. Atkinson and others had read some of the papers published by Xerox PARC, so they knew they were not getting a full description. Jobs phoned the head of the Xerox venture capital division to complain; a call immediately came back from corporate headquarters in Connecticut decreeing that Jobs and his group should be shown everything. Goldberg stormed out in a rage.

When Tesler finally showed them what was truly under the hood, the Apple folks were astonished. Atkinson stared at the screen, examining each pixel so closely that Tesler could feel the breath on his neck. Jobs bounced around and waved his arms excitedly. "He was hopping around so much I don't know how he actually saw most of the demo, but he did, because he kept asking questions," Tesler recalled. "He was the exclamation point for every step I showed." Jobs kept saying that he couldn't believe that Xerox had not commercialized the technology. "You're sitting on a gold mine," he shouted. "I can't believe Xerox is not taking advantage of this."

The Smalltalk demonstration showed three amazing features. One was how computers could be networked; the second was how object-oriented programming worked. But Jobs and his team paid little attention to these attributes because they were so amazed by the third feature, the graphical interface that was made possible by a bitmapped screen. "It was like a veil being lifted from my eyes," Jobs recalled. "I could see what the future of computing was destined to be."

When the Xerox PARC meeting ended after more than two hours, Jobs drove Bill Atkinson back to the Apple office in Cupertino. He was speeding, and so were his mind and mouth. "This is it!" he shouted, emphasizing each word. "We've got to do it!" It was the breakthrough he had been looking for: bringing computers to the people, with the cheerful but affordable design of an Eichler home and the ease of use of a sleek kitchen appliance.

"How long would this take to implement?" he asked.

"I'm not sure," Atkinson replied. "Maybe six months." It was a wildly optimistic assessment, but also a motivating one.

"Great Artists Steal"

The Apple raid on Xerox PARC is sometimes described as one of the biggest heists in the chronicles of industry. Jobs occasionally endorsed this view, with pride. As he once said, "Picasso had a saying—'good artists copy, great artists steal'—and we have always been shameless about stealing great ideas."

Another assessment, also sometimes endorsed by Jobs, is that what transpired was less a heist by Apple than a fumble by Xerox. "They were copier-heads who had no clue about what a computer could do," he said of Xerox's management. "They just grabbed defeat from the greatest victory in the computer industry. Xerox could have owned the entire computer industry."

Both assessments contain a lot of truth, but there is more to it than that. There falls a shadow, as T. S. Eliot noted, between the conception and the creation. In the annals of innovation, new ideas are only part of the equation. Execution is just as important.

Jobs and his engineers significantly improved the graphical interface ideas they saw at Xerox PARC, and then were able to implement them in ways that Xerox never could accomplish. For example, the Xerox mouse had three buttons, was complicated, cost $300 apiece, and didn't roll around smoothly; a few days after his second Xerox PARC visit, Jobs went to a local industrial design firm, IDEO, and told one of its founders, Dean Hovey, that he wanted a simple single-button model that cost $15, "and I want to be able to use it on Formica and my blue jeans." Hovey complied.

The improvements were in not just the details but the entire concept. The mouse at Xerox PARC could not be used to drag a window around the screen. Apple's engineers devised an interface so you could not only drag windows and files around, you could even drop them into folders. The Xerox system required you to select a command in order to do anything, ranging from resizing a window to changing the extension that located a file. The Apple system transformed the desktop metaphor into virtual reality by allowing you to directly touch, manipulate, drag, and relocate things. And Apple's engineers worked in tandem with its designers—with Jobs spurring them on daily—to improve the desktop concept by adding delightful icons and menus that pulled down from a bar atop each window and the capability to open files and folders with a double click.

It's not as if Xerox executives ignored what their scientists had created at PARC. In fact they did try to capitalize on it, and in the process they showed why good execution is as important as good ideas. In 1981, well before the Apple Lisa or Macintosh, they introduced the Xerox Star, a machine that featured their graphical user interface, mouse, bitmapped display, windows, and desktop metaphor. But it was clunky (it could take minutes to save a large file), costly ($16,595 at retail stores), and aimed mainly at the networked office market. It flopped; only thirty thousand were ever sold.

Jobs and his team went to a Xerox dealer to look at the Star as soon as it was released. But he deemed it so worthless that he told his colleagues they couldn't spend the money to buy one. "We were very relieved," he recalled. "We knew they hadn't done it right, and that we could—at a fraction of the price." A few weeks later he called Bob Belleville, one of the hardware designers on the Xerox Star team. "Everything you've ever done in your life is shit," Jobs said, "so why don't you come work for me?" Belleville did, and so did Larry Tesler.

In his excitement, Jobs began to take over the daily management of the Lisa project, which was being run by John Couch, the former HP engineer. Ignoring Couch, he dealt directly with Atkinson and Tesler to insert his own ideas, especially on Lisa's graphical interface design. "He would call me at all hours, 2 a.m. or 5 a.m.," said Tesler. "I loved it. But it upset my bosses at the Lisa division." Jobs was told to stop making out-of-channel calls. He held himself back for a while, but not for long.

One important showdown occurred when Atkinson decided that the screen should have a white background rather than a dark one. This would allow an attribute that both Atkinson and Jobs wanted: WYSIWYG, pronounced "wiz-ee-wig," an acronym for "What you see is what you get." What you saw on the screen was what you'd get when you printed it out. "The hardware team screamed bloody murder," Atkinson recalled. "They said it would force us to use a phosphor that was a lot less persistent and would flicker more." So Atkinson enlisted Jobs, who came down on his side. The hardware folks grumbled, but then went off and figured it out. "Steve wasn't much of an engineer himself, but he was very good at assessing people's answers. He could tell whether the engineers were defensive or unsure of themselves."

One of Atkinson's amazing feats (which we are so accustomed to nowadays that we rarely marvel at it) was to allow the windows on a screen to overlap so that the "top" one clipped into the ones "below" it. Atkinson made it possible to move these windows around, just like shuffling papers on a desk, with those below becoming visible or hidden as you moved the top ones. Of course, on a computer screen there are no layers of pixels underneath the pixels that you see, so there are no windows actually lurking underneath the ones that appear to be on top. To create the illusion of overlapping windows requires complex coding that involves what are called "regions." Atkinson pushed himself to make this trick work because he thought he had seen this capability during his visit to Xerox PARC. In fact the folks at PARC had never accomplished it, and they later told him they were amazed that he had done so. "I got a feeling for the empowering aspect of naïveté," Atkinson said. "Because I didn't know it couldn't be done, I was enabled to do it." He was working so hard that one morning, in a daze, he drove his Corvette into a parked truck and nearly killed himself. Jobs immediately drove to the hospital to see him. "We were pretty worried about you," he said when Atkinson regained consciousness. Atkinson gave him a pained smile and replied, "Don't worry, I still remember regions."

Jobs also had a passion for smooth scrolling. Documents should not lurch line by line as you scroll through them, but instead should flow. "He was adamant that everything on the interface had a good feeling to the user," Atkinson said. They also wanted a mouse that could easily move the cursor in any direction, not just up-down/left-right. This required using a ball rather than the usual two wheels. One of the engineers told Atkinson that there was no way to build such a mouse commercially. After Atkinson complained to Jobs over dinner, he arrived at the office the next day to discover that Jobs had fired the engineer. When his replacement met Atkinson, his first words were, "I can build the mouse."

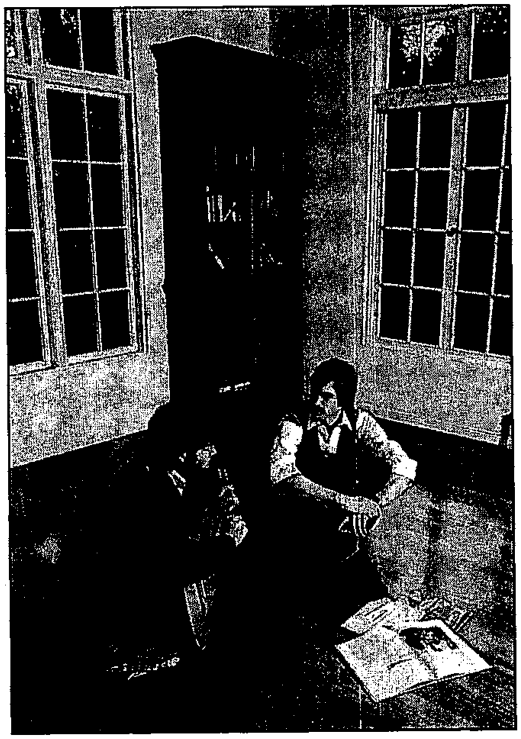
Atkinson and Jobs became best friends for a while, eating together at the Good Earth most nights. But John Couch and the other professional engineers on his Lisa team, many of them buttoned-down HP types, resented Jobs's meddling and were infuriated by his frequent insults. There was also a clash of visions. Jobs wanted to build a VolksLisa, a simple and inexpensive product for the masses. "There was a tug-of-war between people like me, who wanted a lean machine, and those from HP, like Couch, who were aiming for the corporate market," Jobs recalled.

Both Mike Scott and Mike Markkula were intent on bringing some order to Apple and became increasingly concerned about Jobs's disruptive behavior. So in September 1980, they secretly plotted a reorganization. Couch was made the undisputed manager of the Lisa division. Jobs lost control of the computer he had named after his daughter. He was also stripped of his role as vice president for research and development. He was made non-executive chairman of the board. This position allowed him to remain Apple's public face, but it meant that he had no operating control. That hurt. "I was upset and felt abandoned by Markkula," he said. "He and Scotty felt I wasn't up to running the Lisa division. I brooded about it a lot."

CHAPTER NINE

GOING PUBLIC

A Man of Wealth and Fame



With Wozniak, 1981

Options

When Mike Markkula joined Jobs and Wozniak to turn their fledgling partnership into the Apple Computer Co. in January 1977, they valued it at $5,309. Less than four years later they decided it was time to take it public. It would become the most oversubscribed initial public offering since that of Ford Motors in 1956. By the end of December

1980, Apple would be valued at $1.79 billion. Yes, *billion*. In the process it would make three hundred people millionaires.

Daniel Kottke was not one of them. He had been Jobs's soul mate in college, in India, at the All One Farm, and in the rental house they shared during the Chrisann Brennan crisis. He joined Apple when it was headquartered in Jobs's garage, and he still worked there as an hourly employee. But he was not at a high enough level to be cut in on the stock options that were awarded before the IPO. "I totally trusted Steve, and I assumed he would take care of me like I'd taken care of him, so I didn't push," said Kottke. The official reason he wasn't given stock options was that he was an hourly technician, not a salaried engineer, which was the cutoff level for options. Even so, he could have justifiably been given "founder's stock," but Jobs decided not to. "Steve is the opposite of loyal," according to Andy Hertzfeld, an early Apple engineer who has nevertheless remained friends with him. "He's anti-loyal. He has to abandon the people he is close to."

Kottke decided to press his case with Jobs by hovering outside his office and catching him to make a plea. But at each encounter, Jobs brushed him off. "What was really so difficult for me is that Steve never told me I wasn't eligible," recalled Kottke. "He owed me that as a friend. When I would ask him about stock, he would tell me I had to talk to my manager." Finally, almost six months after the IPO, Kottke worked up the courage to march into Jobs's office and try to hash out the issue. But when he got in to see him, Jobs was so cold that Kottke froze. "I just got choked up and began to cry and just couldn't talk to him," Kottke recalled. "Our friendship was all gone. It was so sad."

Rod Holt, the engineer who had built the power supply, was getting a lot of options, and he tried to turn Jobs around. "We have to do something for your buddy Daniel," he said, and he suggested they each give him some of their own options. "Whatever you give him, I will match it," said Holt. Replied Jobs, "Okay. I will give him zero."

Wozniak, not surprisingly, had the opposite attitude. Before the shares went public, he decided to sell, at a very low price, two thousand of his options to forty different midlevel employees. Most of his beneficiaries made enough to buy a home. Wozniak bought a dream home for himself and his new wife, but she soon divorced him and kept the house. He also later gave shares outright to employees he felt had been shortchanged, including Kottke, Fernandez, Wigginton, and Espinosa. Everyone loved Wozniak, all the more so after his generosity, but many also agreed with Jobs that he was "awfully naïve and childlike." A few months later a United Way poster showing a destitute man went up on a company bulletin board. Someone scrawled on it "Woz in 1990."

Jobs was not naïve. He had made sure his deal with Chrisann Brennan was signed before the IPO occurred.

Jobs was the public face of the IPO, and he helped choose the two investment banks handling it: the traditional Wall Street firm Morgan Stanley and the untraditional boutique firm Hambrecht & Quist in San Francisco. "Steve was very irreverent toward the guys from Morgan Stanley, which was a pretty uptight firm in those days," recalled Bill Hambrecht. Morgan Stanley planned to price the offering at $18, even though it was obvious the shares would quickly shoot up. "Tell me what happens to this stock that we priced at eighteen?" Jobs asked the bankers. "Don't you sell it to your good customers? If so, how can you charge me a 7% commission?" Hambrecht recognized that there was a basic unfairness in the system, and he later went on to formulate the idea of a reverse auction to price shares before an IPO.

Apple went public the morning of December 12, 1980. By then the bankers had priced the stock at $22 a share. It went to $29 the first day. Jobs had come into the Hambrecht & Quist office just in time to watch the opening trades. At age twenty-five, he was now worth $256 million.

Baby You're a Rich Man

Before and after he was rich, and indeed throughout a life that included being both broke and a billionaire, Steve Jobs's attitude toward wealth was complex. He was an antimaterialistic hippie who capitalized on the inventions of a friend who wanted to give them away for free, and he was a Zen devotee who made a pilgrimage to India and then decided that his calling was to create a business. And yet somehow these attitudes seemed to weave together rather than conflict.

He had a great love for some material objects, especially those that were finely designed and crafted, such as Porsche and Mercedes cars, Henckels knives and Braun appliances, BMW motorcycles and Ansel Adams prints, Bösendorfer pianos and Bang & Olufsen audio equipment. Yet the houses he lived in, no matter how rich he became, tended not to be ostentatious and were furnished so simply they would have put a Shaker to shame. Neither then nor later would he travel with an entourage, keep a personal staff, or even have security protection. He bought a nice car, but always drove himself. When Markkula asked Jobs to join him in buying a Lear jet, he declined (though he eventually would demand of Apple a Gulfstream to use). Like his father, he could be flinty when bargaining with suppliers, but he didn't allow a craving for profits to take precedence over his passion for building great products.

Thirty years after Apple went public, he reflected on what it was like to come into money suddenly:

> I never worried about money. I grew up in a middle-class family, so I never thought I would starve. And I learned at Atari that I could be an okay engineer, so I always knew I could get by. I was voluntarily poor when I was in college and India, and I lived a pretty simple life even when I was working. So I went from fairly poor, which was wonderful, because I didn't have to worry about money, to being incredibly rich, when I also didn't have to worry about money.
>
> I watched people at Apple who made a lot of money and felt they had to live differently. Some of them bought a Rolls-Royce and various houses, each with a house manager and then someone to manage the house managers. Their wives got plastic surgery and turned into these bizarre people. This was not how I wanted to live. It's crazy. I made a promise to myself that I'm not going to let this money ruin my life.

He was not particularly philanthropic. He briefly set up a foundation, but he discovered that it was annoying to have to deal with the person he had hired to run it, who kept talking about "venture" philanthropy and how to "leverage" giving. Jobs became contemptuous of people who made a display of philanthropy or thinking they could reinvent it. Earlier he had quietly sent in a $5,000 check to help launch Larry Brilliant's Seva Foundation to fight diseases of poverty, and he even agreed to join the board. But when Brilliant brought some board members, including Wavy Gravy and Jerry Garcia, to Apple right after its IPO to solicit a donation, Jobs was not forthcoming. He instead worked on finding ways that a donated Apple II and a VisiCalc program could make it easier for the foundation to do a survey it was planning on blindness in Nepal.

His biggest personal gift was to his parents, Paul and Clara Jobs, to whom he gave about $750,000 worth of stock. They sold some to pay off the mortgage on their Los Altos home, and their son came over for the little celebration. "It was the first time in their lives they didn't have a mortgage," Jobs recalled. "They had a handful of their friends over for the party, and it was really nice." Still, they didn't consider buying a nicer house. "They weren't interested in that," Jobs said. "They had a life they were happy with." Their only splurge was to take a Princess cruise each year. The one through the Panama Canal "was the big one for my dad," according to Jobs, because it reminded him of when his Coast Guard ship went through on its way to San Francisco to be decommissioned.

With Apple's success came fame for its poster boy. *Inc.* became the first magazine to put him on its cover, in October 1981. "This man has changed business forever," it proclaimed. It showed Jobs with a neatly trimmed beard and well-styled long hair, wearing blue jeans and a dress shirt with a blazer that was a little too satiny. He was leaning on an Apple II and looking directly into the camera with the mesmerizing stare he had picked up from Robert Friedland. "When Steve Jobs speaks, it is with the gee-whiz enthusiasm of someone who sees the future and is making sure it works," the magazine reported.

Time followed in February 1982 with a package on young entrepreneurs. The cover was a painting of Jobs, again with his hypnotic stare. Jobs, said the main story, "practically singlehanded created the personal computer industry." The accompanying profile, written by Michael

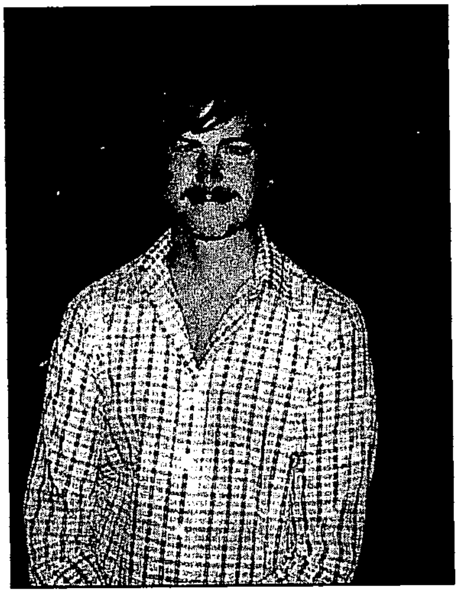
Moritz, noted, "At 26, Jobs heads a company that six years ago was located in a bedroom and garage of his parents' house, but this year it is expected to have sales of $600 million. . . . As an executive, Jobs has sometimes been petulant and harsh on subordinates. Admits he: 'I've got to learn to keep my feelings private.' "

Despite his new fame and fortune, he still fancied himself a child of the counterculture. On a visit to a Stanford class, he took off his Wilkes Bashford blazer and his shoes, perched on top of a table, and crossed his legs into a lotus position. The students asked questions, such as when Apple's stock price would rise, which Jobs brushed off. Instead he spoke of his passion for future products, such as someday making a computer as small as a book. When the business questions tapered off, Jobs turned the tables on the well-groomed students. "How many of you are virgins?" he asked. There were nervous giggles. "How many of you have taken LSD?" More nervous laughter, and only one or two hands went up. Later Jobs would complain about the new generation of kids, who seemed to him more materialistic and careerist than his own. "When I went to school, it was right after the sixties and before this general wave of practical purposefulness had set in," he said. "Now students aren't even thinking in idealistic terms, or at least nowhere near as much." His generation, he said, was different. "The idealistic wind of the sixties is still at our backs, though, and most of the people I know who are my age have that ingrained in them forever."

CHAPTER TEN

THE MAC IS BORN

You Say You Want a Revolution



Jobs in 1982

Jef Raskin's Baby

Jef Raskin was the type of character who could enthrall Steve Jobs—or annoy him. As it turned out, he did both. A philosophical guy who could be both playful and ponderous, Raskin had studied computer science, taught music and visual arts, conducted a chamber opera company, and organized guerrilla theater. His 1967 doctoral thesis at U.C. San Diego argued that computers should have graphical rather than text-based interfaces. When he got fed up with teaching, he rented a hot air balloon, flew over the chancellor's house, and shouted down his decision to quit.

When Jobs was looking for someone to write a manual for the Apple II in 1976, he called Raskin, who had his own little consulting firm. Raskin went to the garage, saw Wozniak beavering away at a workbench, and was convinced by Jobs to write the manual for $50. Eventually he became the manager of Apple's publications department. One of Raskin's dreams was to build an inexpensive computer for the masses, and in 1979 he convinced Mike Markkula to put him in charge of a small development project code-named "Annie" to do just that. Since Raskin thought it was sexist to name computers after women, he redubbed the project in honor of his favorite type of apple, the McIntosh. But he changed the spelling in order not to conflict with the name of the audio equipment maker McIntosh Laboratory. The proposed computer became known as the Macintosh.

Raskin envisioned a machine that would sell for $1,000 and be a simple appliance, with screen and keyboard and computer all in one unit. To keep the cost down, he proposed a tiny five-inch screen and a very cheap (and underpowered) microprocessor, the Motorola 6809. Raskin fancied himself a philosopher, and he wrote his thoughts in an ever-expanding notebook that he called "The Book of Macintosh." He also issued occasional manifestos. One of these was called "Computers by the Millions," and it began with an aspiration: "If personal computers are to be truly personal, it will have to be as likely as not that a family, picked at random, will own one."

Throughout 1979 and early 1980 the Macintosh project led a tenuous existence. Every few months it would almost get killed off, but each time Raskin managed to cajole Markkula into granting clemency. It had a research team of only four engineers located in the original Apple office space next to the Good Earth restaurant, a few blocks from the company's new main building. The work space was filled with enough toys and radio-controlled model airplanes (Raskin's passion) to make it look like a day care center for geeks. Every now and then work would cease for a loosely organized game of Nerf ball tag. Andy Hertzfeld recalled, "This inspired everyone to surround their work area with barricades made out of cardboard, to provide cover during the game, making part of the office look like a cardboard maze."

The star of the team was a blond, cherubic, and psychologically intense self-taught young engineer named Burrell Smith, who worshipped the code work of Wozniak and tried to pull off similar dazzling feats. Atkinson discovered Smith working in Apple's service department and, amazed at his ability to improvise fixes, recommended him to Raskin. Smith would later succumb to schizophrenia, but in the early 1980s he was able to channel his manic intensity into weeklong binges of engineering brilliance.

Jobs was enthralled by Raskin's vision, but not by his willingness to make compromises to keep down the cost. At one point in the fall of 1979 Jobs told him instead to focus on building what he repeatedly called an "insanely great" product. "Don't worry about price, just specify the computer's abilities," Jobs told him. Raskin responded with a sarcastic memo. It spelled out everything you would want in the proposed computer: a high-resolution color display, a printer that worked without a ribbon and could produce graphics in color at a page per second, unlimited access to the ARPA net, and the capability to recognize speech and synthesize music, "even simulate Caruso singing with the Mormon tabernacle choir, with variable reverberation." The memo concluded, "Starting with the abilities desired is nonsense. We must start both with a price goal, and a set of abilities, and keep an eye on today's and the immediate future's technology." In other words, Raskin had little patience for Jobs's belief that you could distort reality if you had enough passion for your product.

Thus they were destined to clash, especially after Jobs was ejected from the Lisa project in September 1980 and began casting around for someplace else to make his mark. It was inevitable that his gaze would fall on the Macintosh project. Raskin's manifestos about an inexpensive machine for the masses, with a simple graphic interface and clean design, stirred his soul. And it was also inevitable that once Jobs set his sights on the Macintosh project, Raskin's days were numbered. "Steve started acting on what he thought we should do, Jef started brooding, and it instantly was clear what the outcome would be," recalled Joanna Hoffman, a member of the Mac team.

The first conflict was over Raskin's devotion to the underpowered Motorola 6809 microprocessor. Once again it was a clash between Raskin's desire to keep the Mac's price under $1,000 and Jobs's determination to build an insanely great machine. So Jobs began pushing for the Mac to switch to the more powerful Motorola 68000, which is what the Lisa was using. Just before Christmas 1980, he challenged Burrell Smith, without telling Raskin, to make a redesigned prototype that used the more powerful chip. As his hero Wozniak would have done, Smith threw himself into the task around the clock, working nonstop for three weeks and employing all sorts of breathtaking programming leaps. When he succeeded, Jobs was able to force the switch to the Motorola 68000, and Raskin had to brood and recalculate the cost of the Mac.

There was something larger at stake. The cheaper microprocessor that Raskin wanted would not have been able to accommodate all of the gee-whiz graphics—windows, menus, mouse, and so on—that the team had seen on the Xerox PARC visits. Raskin had convinced everyone to go to Xerox PARC, and he liked the idea of a bitmapped display and windows, but he was not as charmed by all the cute graphics and icons, and he absolutely detested the idea of using a point-and-click mouse rather than the keyboard. "Some of the people on the project became enamored of the quest to do everything with the mouse," he later groused. "Another example is the absurd application of icons. An icon is a symbol equally incomprehensible in all human languages. There's a reason why humans invented phonetic languages."

Raskin's former student Bill Atkinson sided with Jobs. They both wanted a powerful processor that could support whizzier graphics and the use of a mouse. "Steve had to take the project away from Jef," Atkinson said. "Jef was pretty firm and stubborn, and Steve was right to take it over. The world got a better result."

The disagreements were more than just philosophical; they became clashes of personality. "I think that he likes people to jump when he says jump," Raskin once said. "I felt that he was untrustworthy, and that he does not take kindly to being found wanting. He doesn't seem to like people who see him without a halo." Jobs was equally dismissive of Raskin. "Jef was really pompous," he said. "He didn't know much about interfaces. So I decided to nab some of his people who were really good, like Atkinson, bring in some of my own, take the thing over and build a less expensive Lisa, not some piece of junk."

Some on the team found Jobs impossible to work with. "Jobs seems to introduce tension, politics, and hassles rather than enjoying a buffer from those distractions," one engineer wrote in a memo to Raskin in December 1980. "I thoroughly enjoy talking with him, and I admire his ideas, practical perspective, and energy. But I just don't feel that he provides the trusting, supportive, relaxed environment that I need."

But many others realized that despite his temperamental failings, Jobs had the charisma and corporate clout that would lead them to "make a dent in the universe." Jobs told the staff that Raskin was just a dreamer, whereas he was a doer and would get the Mac done in a year. It was clear he wanted vindication for having been ousted from the Lisa group, and he was energized by competition. He publicly bet John Couch $5,000 that the Mac would ship before the Lisa. "We can make a computer that's cheaper and better than the Lisa, and get it out first," he told the team.

Jobs asserted his control of the group by canceling a brown-bag lunch seminar that Raskin was scheduled to give to the whole company in February 1981. Raskin happened to go by the room anyway and discovered that there were a hundred people there waiting to hear him; Jobs had not bothered to notify anyone else about his cancellation order. So Raskin went ahead and gave a talk.

That incident led Raskin to write a blistering memo to Mike Scott, who once again found himself in the difficult position of being a president trying to manage a company's temperamental cofounder and major stockholder. It was titled "Working for/with Steve Jobs," and in it Raskin asserted:

> He is a dreadful manager. . . . I have always liked Steve, but I have found it impossible to work for him. . . . Jobs regularly misses appointments. This is so well-known as to be almost a running joke. . . . He acts without thinking and with bad judgment. . . . He does not give credit where due. . . . Very often, when told of a new idea, he will immediately attack it and say that it is worthless or even stupid, and tell you that it was a waste of time to work on it. This alone is bad management, but if the idea is a good one he will soon be telling people about it as though it was his own.

That afternoon Scott called in Jobs and Raskin for a showdown in front of Markkula. Jobs started crying. He and Raskin agreed on only one thing: Neither could work for the other one. On the Lisa project, Scott had sided with Couch. This time he decided it was best to let Jobs win. After all, the Mac was a minor development project housed in a distant building that could keep Jobs occupied away from the main campus. Raskin was told to take a leave of absence. "They wanted to humor me and give me something to do, which was fine," Jobs recalled. "It was like going back to the garage for me. I had my own ragtag team and I was in control."

Raskin's ouster may not have seemed fair, but it ended up being good for the Macintosh. Raskin wanted an appliance with little memory, an anemic processor, a cassette tape, no mouse, and minimal graphics. Unlike Jobs, he might have been able to keep the price down to close to $1,000, and that may have helped Apple win market share. But he could not have pulled off what Jobs did, which was to create and market a machine that would transform personal computing. In fact we can see where the road not taken led. Raskin was hired by Canon to build the machine he wanted. "It was the Canon Cat, and it was a total flop," Atkinson said. "Nobody wanted it. When Steve turned the Mac into a compact version of the Lisa, it made it into a computing platform instead of a consumer electronic device."*

Texaco Towers

A few days after Raskin left, Jobs appeared at the cubicle of Andy Hertzfeld, a young engineer on the Apple II team, who had a cherubic face and impish demeanor similar to his pal Burrell Smith's. Hertzfeld recalled that most of his colleagues were afraid of Jobs "because of his spontaneous temper tantrums and his proclivity to tell everyone exactly what he thought, which often wasn't very favorable." But Hertzfeld was excited by him. "Are you any good?" Jobs asked the moment he walked in. "We only want really good people working on the Mac, and I'm not sure you're good enough." Hertzfeld knew how to answer. "I told him that yes, I thought that I was pretty good."

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* Raskin died of pancreatic cancer in 2005, not long after Jobs was diagnosed with the disease.

Jobs left, and Hertzfeld went back to his work. Later that afternoon he looked up to see Jobs peering over the wall of his cubicle. "I've got good news for you," he said. "You're working on the Mac team now. Come with me."

Hertzfeld replied that he needed a couple more days to finish the Apple II product he was in the middle of. "What's more important than working on the Macintosh?" Jobs demanded. Hertzfeld explained that he needed to get his Apple II DOS program in good enough shape to hand it over to someone. "You're just wasting your time with that!" Jobs replied. "Who cares about the Apple II? The Apple II will be dead in a few years. The Macintosh is the future of Apple, and you're going to start on it now!" With that, Jobs yanked out the power cord to Hertzfeld's Apple II, causing the code he was working on to vanish. "Come with me," Jobs said. "I'm going to take you to your new desk." Jobs drove Hertzfeld, computer and all, in his silver Mercedes to the Macintosh offices. "Here's your new desk," he said, plopping him in a space next to Burrell Smith. "Welcome to the Mac team!" The desk had been Raskin's. In fact Raskin had left so hastily that some of the drawers were still filled with his flotsam and jetsam, including model airplanes.

Jobs's primary test for recruiting people in the spring of 1981 to be part of his merry band of pirates was making sure they had a passion for the product. He would sometimes bring candidates into a room where a prototype of the Mac was covered by a cloth, dramatically unveil it, and watch. "If their eyes lit up, if they went right for the mouse and started pointing and clicking, Steve would smile and hire them," recalled Andrea Cunningham. "He wanted them to say 'Wow!' "

Bruce Horn was one of the programmers at Xerox PARC. When some of his friends, such as Larry Tesler, decided to join the Macintosh group, Horn considered going there as well. But he got a good offer, and a $15,000 signing bonus, to join another company. Jobs called him on a Friday night. "You have to come into Apple tomorrow morning," he said. "I have a lot of stuff to show you." Horn did, and Jobs hooked him. "Steve was so passionate about building this amazing device that would change the world," Horn recalled. "By sheer force of his personality, he changed my mind." Jobs showed Horn exactly how the plastic would be molded and would fit together at perfect angles, and how good the board was going to look inside. "He wanted me to see that this whole thing was going to happen and it was thought out from end to end. Wow, I said, I don't see that kind of passion every day. So I signed up."

Jobs even tried to reengage Wozniak. "I resented the fact that he had not been doing much, but then I thought, hell, I wouldn't be here without his brilliance," Jobs later told me. But as soon as Jobs was starting to get him interested in the Mac, Wozniak crashed his new single-engine Beechcraft while attempting a takeoff near Santa Cruz. He barely survived and ended up with partial amnesia. Jobs spent time at the hospital, but when Wozniak recovered he decided it was time to take a break from Apple. Ten years after dropping out of Berkeley, he decided to return there to finally get his degree, enrolling under the name of Rocky Raccoon Clark.

In order to make the project his own, Jobs decided it should no longer be code-named after Raskin's favorite apple. In various interviews, Jobs had been referring to computers as a bicycle for the mind; the ability of humans to create a bicycle allowed them to move more efficiently than even a condor, and likewise the ability to create computers would multiply the efficiency of their minds. So one day Jobs decreed that henceforth the Macintosh should be known instead as the Bicycle. This did not go over well. "Burrell and I thought this was the silliest thing we ever heard, and we simply refused to use the new name," recalled Hertzfeld. Within a month the idea was dropped.

By early 1981 the Mac team had grown to about twenty, and Jobs decided that they should have bigger quarters. So he moved everyone to the second floor of a brown-shingled, two-story building about three blocks from Apple's main offices. It was next to a Texaco station and thus became known as Texaco Towers. In order to make the office more lively, he told the team to buy a stereo system. "Burrell and I ran out and bought a silver, cassette-based boom box right away, before he could change his mind," recalled Hertzfeld.

Jobs's triumph was soon complete. A few weeks after winning his power struggle with Raskin to run the Mac division, he helped push out Mike Scott as Apple's president. Scotty had become more and more erratic, alternately bullying and nurturing. He finally lost most of his support among the employees when he surprised them by imposing a round of layoffs that he handled with atypical ruthlessness. In addition, he had begun to suffer a variety of afflictions, ranging from eye infections to narcolepsy. When Scott was on vacation in Hawaii, Markkula called together the top managers to ask if he should be replaced. Most of them, including Jobs and John Couch, said yes. So Markkula took over as an interim and rather passive president, and Jobs found that he now had full rein to do what he wanted with the Mac division.

CHAPTER ELEVEN

THE REALITY DISTORTION FIELD

Playing by His Own Set of Rules

The original Mac team in 1984: George Crow, Joanna Hoffman, Burrell Smith, Andy Hertzfeld, Bill Atkinson, and Jerry Manock

When Andy Hertzfeld joined the Macintosh team, he got a briefing from Bud Tribble, the other software designer, about the huge amount of work that still needed to be done. Jobs wanted it finished by January 1982, less than a year away. "That's crazy," Hertzfeld said. "There's no way." Tribble said that Jobs would not accept any contrary facts. "The best way to describe the situation is a term from *Star Trek*," Tribble explained. "Steve has a reality distortion field." When Hertzfeld looked puzzled, Tribble elaborated. "In his presence, reality is malleable. He can convince anyone of practically anything. It wears off when he's not around, but it makes it hard to have realistic schedules."

Tribble recalled that he adopted the phrase from the "Menagerie" episodes of *Star Trek*, "in which the aliens create their own new world through sheer mental force." He meant the phrase to be a compliment as well as a caution: "It was dangerous to get caught in Steve's distortion field, but it was what led him to actually be able to change reality."

At first Hertzfeld thought that Tribble was exaggerating, but after two weeks of working with Jobs, he became a keen observer of the phenomenon. "The reality distortion field was a confounding mélange of a charismatic rhetorical style, indomitable will, and eagerness to bend any fact to fit the purpose at hand," he said.

There was little that could shield you from the force, Hertzfeld discovered. "Amazingly, the reality distortion field seemed to be effective even if you were acutely aware of it. We would often discuss potential techniques for grounding it, but after a while most of us gave up, accepting it as a force of nature." After Jobs decreed that the sodas in the office refrigerator be replaced by Odwalla organic orange and carrot juices, someone on the team had T-shirts made. "Reality Distortion Field," they said on the front, and on the back, "It's in the juice!"

To some people, calling it a reality distortion field was just a clever way to say that Jobs tended to lie. But it was in fact a more complex form of dissembling. He would assert something—be it a fact about world history or a recounting of who suggested an idea at a meeting—without even considering the truth. It came from willfully defying reality, not only to others but to himself. "He can deceive himself," said Bill Atkinson. "It allowed him to con people into believing his vision, because he has personally embraced and internalized it."

A lot of people distort reality, of course. When Jobs did so, it was often a tactic for accomplishing something. Wozniak, who was as congenitally honest as Jobs was tactical, marveled at how effective it could be. "His reality distortion is when he has an illogical vision of the future, such as telling me that I could design the Breakout game in just a few days. You realize that it can't be true, but he somehow makes it true."

When members of the Mac team got ensnared in his reality distortion field, they were almost hypnotized. "He reminded me of Rasputin," said Debi Coleman. "He laser-beamed in on you and didn't blink. It didn't matter if he was serving purple Kool-Aid. You drank it." But like Wozniak, she believed that the reality distortion field was empowering: It enabled Jobs to inspire his team to change the course of computer history with a fraction of the resources of Xerox or IBM. "It was a self-fulfilling distortion," she claimed. "You did the impossible, because you didn't realize it was impossible."

At the root of the reality distortion was Jobs's belief that the rules didn't apply to him. He had some evidence for this; in his childhood, he had often been able to bend reality to his desires. Rebelliousness and willfulness were ingrained in his character. He had the sense that he was special, a chosen one, an enlightened one. "He thinks there are a few people who are special—people like Einstein and Gandhi and the gurus he met in India—and he's one of them," said Hertzfeld. "He told Chrisann this. Once he even hinted to me that he was enlightened. It's almost like Nietzsche." Jobs never studied Nietzsche, but the philosopher's concept of the will to power and the special nature of the *Über*man came naturally to him. As Nietzsche wrote in *Thus Spoke Zarathustra*, "The spirit now wills his own will, and he who had been lost to the world now conquers the world." If reality did not comport with his will, he would ignore it, as he had done with the birth of his daughter and would do years later, when first diagnosed with cancer. Even in small everyday rebellions, such as not putting a license plate on his car and parking it in handicapped spaces, he acted as if he were not subject to the strictures around him.

Another key aspect of Jobs's worldview was his binary way of categorizing things. People were either "enlightened" or "an asshole." Their work was either "the best" or "totally shitty." Bill Atkinson, the Mac designer who fell on the good side of these dichotomies, described what it was like:

> It was difficult working under Steve, because there was a great polarity between gods and shitheads. If you were a god, you were up on a pedestal and could do no wrong. Those of us who were considered to be gods, as I was, knew that we were actually mortal and made bad engineering

> decisions and farted like any person, so we were always afraid that we would get knocked off our pedestal. The ones who were shitheads, who were brilliant engineers working very hard, felt there was no way they could get appreciated and rise above their status.

But these categories were not immutable, for Jobs could rapidly reverse himself. When briefing Hertzfeld about the reality distortion field, Tribble specifically warned him about Jobs's tendency to resemble high-voltage alternating current. "Just because he tells you that something is awful or great, it doesn't necessarily mean he'll feel that way tomorrow," Tribble explained. "If you tell him a new idea, he'll usually tell you that he thinks it's stupid. But then, if he actually likes it, exactly one week later, he'll come back to you and propose your idea to you, as if he thought of it."

The audacity of this pirouette technique would have dazzled Diaghilev. "If one line of argument failed to persuade, he would deftly switch to another," Hertzfeld said. "Sometimes, he would throw you off balance by suddenly adopting your position as his own, without acknowledging that he ever thought differently." That happened repeatedly to Bruce Horn, the programmer who, with Tesler, had been lured from Xerox PARC. "One week I'd tell him about an idea that I had, and he would say it was crazy," recalled Horn. "The next week, he'd come and say, 'Hey I have this great idea'—and it would be my idea! You'd call him on it and say, 'Steve, I told you that a week ago,' and he'd say, 'Yeah, yeah, yeah' and just move right along."

It was as if Jobs's brain circuits were missing a device that would modulate the extreme spikes of impulsive opinions that popped into his mind. So in dealing with him, the Mac team adopted an audio concept called a "low pass filter." In processing his input, they learned to reduce the amplitude of his high-frequency signals. That served to smooth out the data set and provide a less jittery moving average of his evolving attitudes. "After a few cycles of him taking alternating extreme positions," said Hertzfeld, "we would learn to low pass filter his signals and not react to the extremes."

Was Jobs's unfiltered behavior caused by a lack of emotional sensitivity? No. Almost the opposite. He was very emotionally attuned, able to read people and know their psychological strengths and vulnerabilities. He could stun an unsuspecting victim with an emotional towel-snap, perfectly aimed. He intuitively knew when someone was faking it or truly knew something. This made him masterful at cajoling, stroking, persuading, flattering, and intimidating people. "He had the uncanny capacity to know exactly what your weak point is, know what will make you feel small, to make you cringe," Joanna Hoffman said. "It's a common trait in people who are charismatic and know how to manipulate people. Knowing that he can crush you makes you feel weakened and eager for his approval, so then he can elevate you and put you on a pedestal and own you."

Ann Bowers became an expert at dealing with Jobs's perfectionism, petulance, and prickliness. She had been the human resources director at Intel, but had stepped aside after she married its cofounder Bob Noyce. She joined Apple in 1980 and served as a calming mother figure who would step in after one of Jobs's tantrums. She would go to his office, shut the door, and gently lecture him. "I know, I know," he would say. "Well, then, please stop doing it," she would insist. Bowers recalled, "He would be good for a while, and then a week or so later I would get a call again." She realized that he could barely contain himself. "He had these huge expectations, and if people didn't deliver, he couldn't stand it. He couldn't control himself. I could understand why Steve would get upset, and he was usually right, but it had a hurtful effect. It created a fear factor. He was self-aware, but that didn't always modify his behavior."

Jobs became close to Bowers and her husband, and he would drop in at their Los Gatos Hills home unannounced. She would hear his motorcycle in the distance and say, "I guess we have Steve for dinner again." For a while she and Noyce were like a surrogate family. "He was so bright and also so needy. He needed a grown-up, a father figure, which Bob became, and I became like a mother figure."

There were some upsides to Jobs's demanding and wounding behavior. People who were not crushed ended up being stronger. They did better work, out of both fear and an eagerness to please. "His behavior can be emotionally draining, but if you survive, it works," Hoffman said. You could also push back—sometimes—and not only survive but thrive. That didn't always work; Raskin tried it, succeeded for a while, and then was destroyed. But if you were calmly confident, if Jobs sized you up and decided that you knew what you were doing, he would respect you. In both his personal and his professional life over the years, his inner circle tended to include many more strong people than toadies.

The Mac team knew that. Every year, beginning in 1981, it gave out an award to the person who did the best job of standing up to him. The award was partly a joke, but also partly real, and Jobs knew about it and liked it. Joanna Hoffman won the first year. From an Eastern European refugee family, she had a strong temper and will. One day, for example, she discovered that Jobs had changed her marketing projections in a way she found totally reality-distorting. Furious, she marched to his office. "As I'm climbing the stairs, I told his assistant I am going to take a knife and stab it into his heart," she recounted. Al Eisenstat, the corporate counsel, came running out to restrain her. "But Steve heard me out and backed down."

Hoffman won the award again in 1982. "I remember being envious of Joanna, because she would stand up to Steve and I didn't have the nerve yet," said Debi Coleman, who joined the Mac team that year. "Then, in 1983, I got the award. I had learned you had to stand up for what you believe, which Steve respected. I started getting promoted by him after that." Eventually she rose to become head of manufacturing.

One day Jobs barged into the cubicle of one of Atkinson's engineers and uttered his usual "This is shit." As Atkinson recalled, "The guy said, 'No it's not, it's actually the best way,' and he explained to Steve the engineering trade-offs he'd made." Jobs backed down. Atkinson taught his team to put Jobs's words through a translator. "We learned to interpret 'This is shit' to actually be a question that means, 'Tell me why this is the best way to do it.' " But the story had a coda, which Atkinson also found instructive. Eventually the engineer found an even better way to perform the function that Jobs had criticized. "He did it better because Steve had challenged him," said Atkinson, "which shows you can push back on him but should also listen, for he's usually right."

Jobs's prickly behavior was partly driven by his perfectionism and his impatience with those who made compromises in order to get a product out on time and on budget. "He could not make trade-offs well," said Atkinson. "If someone didn't care to make their product perfect, they were a bozo." At the West Coast Computer Faire in April 1981, for example, Adam Osborne released the first truly portable personal computer. It was not great—it had a five-inch screen and not much memory—but it worked well enough. As Osborne famously declared, "Adequacy is sufficient. All else is superfluous." Jobs found that approach to be morally appalling, and he spent days making fun of Osborne. "This guy just doesn't get it," Jobs repeatedly railed as he wandered the Apple corridors. "He's not making art, he's making shit."

One day Jobs came into the cubicle of Larry Kenyon, an engineer who was working on the Macintosh operating system, and complained that it was taking too long to boot up. Kenyon started to explain, but Jobs cut him off. "If it could save a person's life, would you find a way to shave ten seconds off the boot time?" he asked. Kenyon allowed that he probably could. Jobs went to a whiteboard and showed that if there were five million people using the Mac, and it took ten seconds extra to turn it on every day, that added up to three hundred million or so hours per year that people would save, which was the equivalent of at least one hundred lifetimes saved per year. "Larry was suitably impressed, and a few weeks later he came back and it booted up twenty-eight seconds faster," Atkinson recalled. "Steve had a way of motivating by looking at the bigger picture."

The result was that the Macintosh team came to share Jobs's passion for making a great product, not just a profitable one. "Jobs thought of himself as an artist, and he encouraged the design team to think of ourselves that way too," said Hertzfeld. "The goal was never to beat the competition, or to make a lot of money. It was to do the greatest thing possible, or even a little greater." He once took the team to see an exhibit of Tiffany glass at the Metropolitan Museum in Manhattan because he believed they could learn from Louis Tiffany's example of creating great art that could be mass-produced. Recalled Bud Tribble, "We said to ourselves, 'Hey, if we're going to make things in our lives, we might as well make them beautiful.' "

Was all of his stormy and abusive behavior necessary? Probably not, nor was it justified. There were other ways to have motivated his team. Even though the Macintosh would turn out to be great, it was way behind schedule and way over budget because of Jobs's impetuous interventions. There was also a cost in brutalized human feelings, which caused much of the team to burn out. "Steve's contributions could have been made without so many stories about him terrorizing folks," Wozniak said. "I like being more patient and not having so many conflicts. I think a company can be a good family. If the Macintosh project had been run my way, things probably would have been a mess. But I think if it had been a mix of both our styles, it would have been better than just the way Steve did it."

But even though Jobs's style could be demoralizing, it could also be oddly inspiring. It infused Apple employees with an abiding passion to create groundbreaking products and a belief that they could accomplish what seemed impossible. They had T-shirts made that read "90 hours a week and loving it!" Out of a fear of Jobs mixed with an incredibly strong urge to impress him, they exceeded their own expectations. "I've learned over the years that when you have really good people you don't have to baby them," Jobs later explained. "By expecting them to do great things, you can get them to do great things. The original Mac team taught me that A-plus players like to work together, and they don't like it if you tolerate B work. Ask any member of that Mac team. They will tell you it was worth the pain."

Most of them agree. "He would shout at a meeting, 'You asshole, you never do anything right,' " Debi Coleman recalled. "It was like an hourly occurrence. Yet I consider myself the absolute luckiest person in the world to have worked with him."

CHAPTER TWELVE

THE DESIGN

Real Artists Simplify

A Bauhaus Aesthetic

Unlike most kids who grew up in Eichler homes, Jobs knew what they were and why they were so wonderful. He liked the notion of simple and clean modernism produced for the masses. He also loved listening to his father describe the styling intricacies of various cars. So from the beginning at Apple, he believed that great industrial design—a colorfully simple logo, a sleek case for the Apple II—would set the company apart and make its products distinctive.

The company's first office, after it moved out of his family garage, was in a small building it shared with a Sony sales office. Sony was famous for its signature style and memorable product designs, so Jobs would drop by to study the marketing material. "He would come in looking scruffy and fondle the product brochures and point out design features," said Dan'l Lewin, who worked there. "Every now and then, he would ask, 'Can I take this brochure?' " By 1980, he had hired Lewin.

His fondness for the dark, industrial look of Sony receded around June 1981, when he began attending the annual International Design Conference in Aspen. The meeting that year focused on Italian style, and it featured the architect-designer Mario Bellini, the filmmaker Bernardo Bertolucci, the car maker Sergio Pininfarina, and the Fiat heiress and politician Susanna Agnelli. "I had come to revere the Italian designers, just like the kid in *Breaking Away* reveres the Italian bikers," recalled Jobs, "so it was an amazing inspiration."

In Aspen he was exposed to the spare and functional design philosophy of the Bauhaus movement, which was enshrined by Herbert Bayer in the buildings, living suites, sans serif font typography, and furniture on the Aspen Institute campus. Like his mentors Walter Gropius and Ludwig Mies van der Rohe, Bayer believed that there should be no distinction between fine art and applied industrial design. The modernist International Style championed by the Bauhaus taught that design should be simple, yet have an expressive spirit. It emphasized rationality and functionality by employing clean lines and forms. Among the maxims preached by Mies and Gropius were "God is in the details" and "Less is more." As with Eichler homes, the artistic sensibility was combined with the capability for mass production.

Jobs publicly discussed his embrace of the Bauhaus style in a talk he gave at the 1983 design conference, the theme of which was "The Future Isn't What It Used to Be." He predicted the passing of the Sony style in favor of Bauhaus simplicity. "The current wave of industrial design is Sony's high-tech look, which is gunmetal gray, maybe paint it black, do weird stuff to it," he said. "It's easy to do that. But it's not great." He proposed an alternative, born of the Bauhaus, that was more true to the function and nature of the products. "What we're going to do is make the products high-tech, and we're going to package them cleanly so that you know they're high-tech. We will fit them in a small package, and then we can make them beautiful and white, just like Braun does with its electronics."

He repeatedly emphasized that Apple's products would be clean and simple. "We will make them bright and pure and honest about being high-tech, rather than a heavy industrial look of black, black, black, black, like Sony," he preached. "So that's our approach. Very simple, and we're really shooting for Museum of Modern Art quality. The way we're running the company, the product design, the advertising, it all comes down to this: Let's make it simple. Really simple."

Apple's design mantra would remain the one featured on its first brochure: "Simplicity is the ultimate sophistication."

Jobs felt that design simplicity should be linked to making products easy to use. Those goals do not always go together. Sometimes a design can be so sleek and simple that a user finds it intimidating or unfriendly to navigate. "The main thing in our design is that we have to make things intuitively obvious," Jobs told the crowd of design mavens. For example, he extolled the desktop metaphor he was creating for the Macintosh. "People know how to deal with a desktop intuitively. If you walk into an office, there are papers on the desk. The one on the top is the most important. People know how to switch priority. Part of the reason we model our computers on metaphors like the desktop is that we can leverage this experience people already have."

Speaking at the same time as Jobs that Wednesday afternoon, but in a smaller seminar room, was Maya Lin, twenty-three, who had been catapulted into fame the previous November when her Vietnam Veterans Memorial was dedicated in Washington, D.C. They struck up a close friendship, and Jobs invited her to visit Apple. "I came to work with Steve for a week," Lin recalled. "I asked him, 'Why do computers look like clunky TV sets? Why don't you make something thin? Why not a flat laptop?' " Jobs replied that this was indeed his goal, as soon as the technology was ready.

At that time there was not much exciting happening in the realm of industrial design, Jobs felt. He had a Richard Sapper lamp, which he admired, and he also liked the furniture of Charles and Ray Eames and the Braun products of Dieter Rams. But there were no towering figures energizing the world of industrial design the way that Raymond Loewy and Herbert Bayer had done. "There really wasn't much going on in industrial design, particularly in Silicon Valley, and Steve was very eager to change that," said Lin. "His design sensibility is sleek but not slick, and it's playful. He embraced minimalism, which came from his Zen devotion to simplicity, but he avoided allowing that to make his products cold. They stayed fun. He's passionate and super-serious about design, but at the same time there's a sense of play."

As Jobs's design sensibilities evolved, he became particularly attracted to the Japanese style and began hanging out with its stars, such as Issey Miyake and I. M. Pei. His Buddhist training was a big influence. "I have always found Buddhism, Japanese Zen Buddhism in particular, to be aesthetically sublime," he said. "The most sublime thing I've ever seen are the gardens around Kyoto. I'm deeply moved by what that culture has produced, and it's directly from Zen Buddhism."

Like a Porsche

Jef Raskin's vision for the Macintosh was that it would be like a boxy carry-on suitcase, which would be closed by flipping up the keyboard over the front screen. When Jobs took over the project, he decided to sacrifice portability for a distinctive design that wouldn't take up much space on a desk. He plopped down a phone book and declared, to the horror of the engineers, that it shouldn't have a footprint larger than that. So his design team of Jerry Manock and Terry Oyama began working on ideas that had the screen above the computer box, with a keyboard that was detachable.

One day in March 1981, Andy Hertzfeld came back to the office from dinner to find Jobs hovering over their one Mac prototype in intense discussion with the creative services director, James Ferris. "We need it to have a classic look that won't go out of style, like the Volkswagen Beetle," Jobs said. From his father he had developed an appreciation for the contours of classic cars.

"No, that's not right," Ferris replied. "The lines should be voluptuous, like a Ferrari."

"Not a Ferrari, that's not right either," Jobs countered. "It should be more like a Porsche!" Jobs owned a Porsche 928 at the time. When Bill Atkinson was over one weekend, Jobs brought him outside to admire the car. "Great art stretches the taste, it doesn't follow tastes," he told Atkinson. He also admired the design of the Mercedes. "Over the years, they've made the lines softer but the details starker," he said one day as he walked around the parking lot. "That's what we have to do with the Macintosh."

Oyama drafted a preliminary design and had a plaster model made. The Mac team gathered around for the unveiling and expressed their thoughts. Hertzfeld called it "cute." Others also seemed satisfied. Then Jobs let loose a blistering burst of criticism. "It's way too boxy, it's got to be more curvaceous. The radius of the first chamfer needs to be bigger, and I don't like the size of the bevel." With his new fluency in industrial design lingo, Jobs was referring to the angular or curved edge connecting the sides of the computer. But then he gave a resounding compliment. "It's a start," he said.

Every month or so, Manock and Oyama would present a new iteration based on Jobs's previous criticisms. The latest plaster model would be dramatically unveiled, and all the previous attempts would be lined up next to it. That not only helped them gauge the design's evolution, but it prevented Jobs from insisting that one of his suggestions had been ignored. "By the fourth model, I could barely distinguish it from the third one," said Hertzfeld, "but Steve was always critical and decisive, saying he loved or hated a detail that I could barely perceive."

One weekend Jobs went to Macy's in Palo Alto and again spent time studying appliances, especially the Cuisinart. He came bounding into the Mac office that Monday, asked the design team to go buy one, and made a raft of new suggestions based on its lines, curves, and bevels.

Jobs kept insisting that the machine should look friendly. As a result, it evolved to resemble a human face. With the disk drive built in below the screen, the unit was taller and narrower than most computers, suggesting a head. The recess near the base evoked a gentle chin, and Jobs narrowed the strip of plastic at the top so that it avoided the Neanderthal forehead that made the Lisa subtly unattractive. The patent for the design of the Apple case was issued in the name of Steve Jobs as well as Manock and Oyama. "Even though Steve didn't draw any of the lines, his ideas and inspiration made the design what it is," Oyama later said. "To be honest, we didn't know what it meant for a computer to be 'friendly' until Steve told us."

Jobs obsessed with equal intensity about the look of what would appear on the screen. One day Bill Atkinson burst into Texaco Towers all excited. He had just come up with a brilliant algorithm that could draw circles and ovals onscreen quickly. The math for making circles usually required calculating square roots, which the 68000 microprocessor didn't support. But Atkinson did a workaround based on the fact that the sum of a sequence of odd numbers produces a sequence of perfect squares (for example, $1 + 3 = 4$, $1 + 3 + 5 = 9$, etc.). Hertzfeld recalled that when Atkinson fired up his demo, everyone was impressed except Jobs. "Well, circles and ovals are good," he said, "but how about drawing rectangles with rounded corners?"

"I don't think we really need it," said Atkinson, who explained that it would be almost impossible to do. "I wanted to keep the graphics routines lean and limit them to the primitives that truly needed to be done," he recalled.

"Rectangles with rounded corners are everywhere!" Jobs said, jumping up and getting more intense. "Just look around this room!" He pointed out the whiteboard and the tabletop and other objects that were rectangular with rounded corners. "And look outside, there's even more, practically everywhere you look!" He dragged Atkinson out for a walk, pointing out car windows and billboards and street signs. "Within three blocks, we found seventeen examples," said Jobs. "I started pointing them out everywhere until he was completely convinced."

"When he finally got to a No Parking sign, I said, 'Okay, you're right, I give up. We need to have a rounded-corner rectangle as a primitive!' " Hertzfeld recalled, "Bill returned to Texaco Towers the following afternoon, with a big smile on his face. His demo was now drawing rectangles with beautifully rounded corners blisteringly fast." The dialogue boxes and windows on the Lisa and the Mac, and almost every other subsequent computer, ended up being rendered with rounded corners.

At the calligraphy class he had audited at Reed, Jobs learned to love typefaces, with all of their serif and sans serif variations, proportional spacing, and leading. "When we were designing the first Macintosh computer, it all came back to me," he later said of that class. Because the Mac was bitmapped, it was possible to devise an endless array of fonts, ranging from the elegant to the wacky, and render them pixel by pixel on the screen.

To design these fonts, Hertzfeld recruited a high school friend from suburban Philadelphia, Susan Kare. They named the fonts after the stops on Philadelphia's Main Line commuter train: Overbrook, Merion, Ardmore, and Rosemont. Jobs found the process fascinating. Late one afternoon he stopped by and started brooding about the font names. They were "little cities that nobody's ever heard of," he complained. "They ought to be *world-class* cities!" The fonts were renamed Chicago, New York, Geneva, London, San Francisco, Toronto, and Venice.

Markkula and some others could never quite appreciate Jobs's obsession with typography. "His knowledge of fonts was remarkable, and he kept insisting on having great ones," Markkula recalled. "I kept saying, 'Fonts?!? Don't we have more important things to do?' " In fact the delightful assortment of Macintosh fonts, when combined with laser-writer printing and great graphics capabilities, would help launch the desktop publishing industry and be a boon for Apple's bottom line. It also introduced all sorts of regular folks, ranging from high school journalists to moms who edited PTA newsletters, to the quirky joy of knowing about fonts, which was once reserved for printers, grizzled editors, and other ink-stained wretches.

Kare also developed the icons, such as the trash can for discarding files, that helped define graphical interfaces. She and Jobs hit it off because they shared an instinct for simplicity along with a desire to make the Mac whimsical. "He usually came in at the end of every day," she said. "He'd always want to know what was new, and he's always had good taste and a good sense for visual details." Sometimes he came in on Sunday morning, so Kare made it a point to be there working. Every now and then, she would run into a problem. He rejected one of her renderings of a rabbit, an icon for speeding up the mouse-click rate, saying that the furry creature looked "too gay."

Jobs lavished similar attention on the title bars atop windows and documents. He had Atkinson and Kare do them over and over again as he agonized over their look. He did not like the ones on the Lisa because they were too black and harsh. He wanted the ones on the Mac to be smoother, to have pinstripes. "We must have gone through twenty different title bar designs before he was happy," Atkinson recalled. At one point Kare and Atkinson complained that he was making them spend too much time on tiny little tweaks to the title bar when they had bigger things to do. Jobs erupted. "Can you imagine looking at that every day?" he shouted. "It's not just a little thing, it's something we have to do right."

Chris Espinosa found one way to satisfy Jobs's design demands and control-freak tendencies. One of Wozniak's youthful acolytes from the days in the garage, Espinosa had been convinced to drop out of Berkeley by Jobs, who argued that he would always have a chance to study, but only one chance to work on the Mac. On his own, he decided to design a calculator for the computer. "We all gathered around as Chris showed the calculator to Steve and then held his breath, waiting for Steve's reaction," Hertzfeld recalled.

"Well, it's a start," Jobs said, "but basically, it stinks. The background color is too dark, some lines are the wrong thickness, and the buttons are too big." Espinosa kept refining it in response to Jobs's critiques, day after day, but with each iteration came new criticisms. So finally one afternoon, when Jobs came by, Espinosa unveiled his inspired solution: "The Steve Jobs Roll Your Own Calculator Construction Set." It allowed the user to tweak and personalize the look of the calculator by changing the thickness of the lines, the size of the buttons, the shading, the background, and other attributes. Instead of just laughing, Jobs plunged in and started to play around with the look to suit his tastes. After about ten minutes he got it the way he liked. His design, not surprisingly, was the one that shipped on the Mac and remained the standard for fifteen years.

Although his focus was on the Macintosh, Jobs wanted to create a consistent design language for all Apple products. So he set up a contest to choose a world-class designer who would be for Apple what Dieter Rams was for Braun. The project was code-named Snow White, not because of his preference for the color but because the products to be designed were code-named after the seven dwarfs. The winner was Hartmut Esslinger, a German designer who was responsible for the look of Sony's Trinitron televisions. Jobs flew to the Black Forest region of Bavaria to meet him and was impressed not only with Esslinger's passion but also his spirited way of driving his Mercedes at more than one hundred miles per hour.

Even though he was German, Esslinger proposed that there should be a "born-in-America gene for Apple's DNA" that would produce a

"California global" look, inspired by "Hollywood and music, a bit of rebellion, and natural sex appeal." His guiding principle was "Form follows emotion," a play on the familiar maxim that form follows function. He produced forty models of products to demonstrate the concept, and when Jobs saw them he proclaimed, "Yes, this is it!" The Snow White look, which was adopted immediately for the Apple IIc, featured white cases, tight rounded curves, and lines of thin grooves for both ventilation and decoration. Jobs offered Esslinger a contract on the condition that he move to California. They shook hands and, in Esslinger's not-so-modest words, "that handshake launched one of the most decisive collaborations in the history of industrial design." Esslinger's firm, frogdesign,* opened in Palo Alto in mid-1983 with a $1.2 million annual contract to work for Apple, and from then on every Apple product has included the proud declaration "Designed in California."

From his father Jobs had learned that a hallmark of passionate craftsmanship is making sure that even the aspects that will remain hidden are done beautifully. One of the most extreme—and telling—implementations of that philosophy came when he scrutinized the printed circuit board that would hold the chips and other components deep inside the Macintosh. No consumer would ever see it, but Jobs began critiquing it on aesthetic grounds. "That part's really pretty," he said. "But look at the memory chips. That's ugly. The lines are too close together."

One of the new engineers interrupted and asked why it mattered. "The only thing that's important is how well it works. Nobody is going to see the PC board."

Jobs reacted typically. "I want it to be as beautiful as possible, even if it's inside the box. A great carpenter isn't going to use lousy wood for the back of a cabinet, even though nobody's going to see it." In an interview a few years later, after the Macintosh came out, Jobs again reiterated that lesson from his father: "When you're a carpenter making a beautiful chest of drawers, you're not going to use a piece of plywood on the back, even though it faces the wall and nobody will ever see it. You'll know it's there, so you're going to use a beautiful piece of wood on the back. For you to sleep well at night, the aesthetic, the quality, has to be carried all the way through."

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* The firm changed its name from frogdesign to frog design in 2000 and moved to San Francisco. Esslinger picked the original name not merely because frogs have the ability to metamorphose, but as a salute to its roots in the (f)ederal (r)epublic (o)f (g)ermany. He said that "the lowercase letters offered a nod to the Bauhaus notion of a non-hierarchical language, reinforcing the company's ethos of democratic partnership."

From Mike Markkula he had learned the importance of packaging and presentation. People do judge a book by its cover, so for the box of the Macintosh, Jobs chose a full-color design and kept trying to make it look better. "He got the guys to redo it fifty times," recalled Alain Rossmann, a member of the Mac team who married Joanna Hoffman. "It was going to be thrown in the trash as soon as the consumer opened it, but he was obsessed by how it looked." To Rossmann, this showed a lack of balance; money was being spent on expensive packaging while they were trying to save money on the memory chips. But for Jobs, each detail was essential to making the Macintosh amazing.

When the design was finally locked in, Jobs called the Macintosh team together for a ceremony. "Real artists sign their work," he said. So he got out a sheet of drafting paper and a Sharpie pen and had all of them sign their names. The signatures were engraved inside each Macintosh. No one would ever see them, but the members of the team knew that their signatures were inside, just as they knew that the circuit board was laid out as elegantly as possible. Jobs called them each up by name, one at a time. Burrell Smith went first. Jobs waited until last, after all forty-five of the others. He found a place right in the center of the sheet and signed his name in lowercase letters with a grand flair. Then he toasted them with champagne. "With moments like this, he got us seeing our work as art," said Atkinson.

CHAPTER THIRTEEN

BUILDING THE MAC

The Journey Is the Reward

Competition

When IBM introduced its personal computer in August 1981, Jobs had his team buy one and dissect it. Their consensus was that it sucked. Chris Espinosa called it "a half-assed, hackneyed attempt," and there was some truth to that. It used old-fashioned command-line prompts and didn't support bitmapped graphical displays. Apple became cocky, not realizing that corporate technology managers might feel more comfortable buying from an established company like IBM rather than one named after a piece of fruit. Bill Gates happened to be visiting Apple headquarters for a meeting on the day the IBM PC was announced. "They didn't seem to care," he said. "It took them a year to realize what had happened."

Reflecting its cheeky confidence, Apple took out a full-page ad in the *Wall Street Journal* with the headline "Welcome, IBM. Seriously." It cleverly positioned the upcoming computer battle as a two-way contest between the spunky and rebellious Apple and the establishment Goliath IBM, conveniently relegating to irrelevance companies such as Commodore, Tandy, and Osborne that were doing just as well as Apple.

Throughout his career, Jobs liked to see himself as an enlightened rebel pitted against evil empires, a Jedi warrior or Buddhist samurai fighting the forces of darkness. IBM was his perfect foil. He cleverly cast the upcoming battle not as a mere business competition, but as a spiritual struggle. "If, for some reason, we make some giant mistakes and IBM wins, my personal feeling is that we are going to enter sort of a computer Dark Ages for about twenty years," he told an interviewer. "Once IBM gains control of a market sector, they almost always stop innovation." Even thirty years later, reflecting back on the competition, Jobs cast it as a holy crusade: "IBM was essentially Microsoft at its worst. They were not a force for innovation; they were a force for evil. They were like ATT or Microsoft or Google is."

Unfortunately for Apple, Jobs also took aim at another perceived competitor to his Macintosh: the company's own Lisa. Partly it was psychological. He had been ousted from that group, and now he wanted to beat it. He also saw healthy rivalry as a way to motivate his troops. That's why he bet John Couch $5,000 that the Mac would ship before the Lisa. The problem was that the rivalry became unhealthy. Jobs repeatedly portrayed his band of engineers as the cool kids on the block, in contrast to the plodding HP engineer types working on the Lisa.

More substantively, when he moved away from Jef Raskin's plan for an inexpensive and underpowered portable appliance and reconceived the Mac as a desktop machine with a graphical user interface, it became a scaled-down version of the Lisa that would likely undercut it in the marketplace.

Larry Tesler, who managed application software for the Lisa, realized that it would be important to design both machines to use many of the same software programs. So to broker peace, he arranged for Smith and Hertzfeld to come to the Lisa work space and demonstrate the Mac prototype. Twenty-five engineers showed up and were listening politely when, halfway into the presentation, the door burst open. It was Rich Page, a volatile engineer who was responsible for much of the Lisa's design. "The Macintosh is going to destroy the Lisa!" he shouted. "The Macintosh is going to ruin Apple!" Neither Smith nor Hertzfeld responded, so Page continued his rant. "Jobs wants to destroy Lisa because we wouldn't let him control it," he said, looking as if he were about to cry. "Nobody's going to buy a Lisa because they know the Mac is coming! But you don't care!" He stormed out of the room and slammed the door, but a moment later he barged back in briefly. "I know it's not your fault," he said to Smith and Hertzfeld. "Steve Jobs is the problem. Tell Steve that he's destroying Apple!"

Jobs did indeed make the Macintosh into a low-cost competitor to the Lisa, one with incompatible software. Making matters worse was that neither machine was compatible with the Apple II. With no one in overall charge at Apple, there was no chance of keeping Jobs in harness.

End-to-end Control

Jobs's reluctance to make the Mac compatible with the architecture of the Lisa was motivated by more than rivalry or revenge. There was a philosophical component, one that was related to his penchant for control. He believed that for a computer to be truly great, its hardware and its software had to be tightly linked. When a computer was open to running software that also worked on other computers, it would end up sacrificing some functionality. The best products, he believed, were "whole widgets" that were designed end-to-end, with the software closely tailored to the hardware and vice versa. This is what would distinguish the Macintosh, which had an operating system that worked only on its own hardware, from the environment that Microsoft was creating, in which its operating system could be used on hardware made by many different companies.

"Jobs is a strong-willed, elitist artist who doesn't want his creations mutated inauspiciously by unworthy programmers," explained ZDNet's editor Dan Farber. "It would be as if someone off the street added some brush strokes to a Picasso painting or changed the lyrics to a Dylan song." In later years Jobs's whole-widget approach would distinguish the iPhone, iPod, and iPad from their competitors. It resulted in awesome products. But it was not always the best strategy for dominating a market. "From the first Mac to the latest iPhone, Jobs's systems have always been sealed shut to prevent consumers from meddling and modifying them," noted Leander Kahney, author of *Cult of the Mac.*

Jobs's desire to control the user experience had been at the heart of his debate with Wozniak over whether the Apple II would have slots that allow a user to plug expansion cards into a computer's motherboard and thus add some new functionality. Wozniak won that argument: The Apple II had eight slots. But this time around it would be Jobs's machine, not Wozniak's, and the Macintosh would have limited slots. You wouldn't even be able to open the case and get to the motherboard. For a hobbyist or hacker, that was uncool. But for Jobs, the Macintosh was for the masses. He wanted to give them a controlled experience.

"It reflects his personality, which is to want control," said Berry Cash, who was hired by Jobs in 1982 to be a market strategist at Texaco Towers. "Steve would talk about the Apple II and complain, 'We don't have control, and look at all these crazy things people are trying to do to it. That's a mistake I'll never make again.'" He went so far as to design special tools so that the Macintosh case could not be opened with a regular screwdriver. "We're going to design this thing so nobody but Apple employees can get inside this box," he told Cash.

Jobs also decided to eliminate the cursor arrow keys on the Macintosh keyboard. The only way to move the cursor was to use the mouse. It was a way of forcing old-fashioned users to adapt to point-and-click navigation, even if they didn't want to. Unlike other product developers, Jobs did not believe the customer was always right; if they wanted to resist using a mouse, they were wrong.

There was one other advantage, he believed, to eliminating the cursor keys: It forced outside software developers to write programs specially for the Mac operating system, rather than merely writing generic software that could be ported to a variety of computers. That made for the type of tight vertical integration between application software, operating systems, and hardware devices that Jobs liked.

Jobs's desire for end-to-end control also made him allergic to proposals that Apple license the Macintosh operating system to other office equipment manufacturers and allow them to make Macintosh clones.

The new and energetic Macintosh marketing director Mike Murray proposed a licensing program in a confidential memo to Jobs in May 1982. "We would like the Macintosh user environment to become an industry standard," he wrote. "The hitch, of course, is that now one must buy Mac hardware in order to get this user environment. Rarely (if ever) has one company been able to create and maintain an industry-wide standard that cannot be shared with other manufacturers." His proposal was to license the Macintosh operating system to Tandy. Because Tandy's Radio Shack stores went after a different type of customer, Murray argued, it would not severely cannibalize Apple sales. But Jobs was congenitally averse to such a plan. His approach meant that the Macintosh remained a controlled environment that met his standards, but it also meant that, as Murray feared, it would have trouble securing its place as an industry standard in a world of IBM clones.

Machines of the Year

As 1982 drew to a close, Jobs came to believe that he was going to be *Time's* Man of the Year. He arrived at Texaco Towers one day with the magazine's San Francisco bureau chief, Michael Moritz, and encouraged colleagues to give Moritz interviews. But Jobs did not end up on the cover. Instead the magazine chose "the Computer" as the topic for the year-end issue and called it "the Machine of the Year."

Accompanying the main story was a profile of Jobs, which was based on the reporting done by Moritz and written by Jay Cocks, an editor who usually handled rock music for the magazine. "With his smooth sales pitch and a blind faith that would have been the envy of the early Christian martyrs, it is Steven Jobs, more than anyone, who kicked open the door and let the personal computer move in," the story proclaimed. It was a richly reported piece, but also harsh at times—so harsh that Moritz (after he wrote a book about Apple and went on to be a partner in the venture firm Sequoia Capital with Don Valentine) repudiated it by complaining that his reporting had been "siphoned, filtered, and poisoned with gossipy benzene by an editor in New York whose regular task was to chronicle the wayward world of rock-and-roll music." The article quoted Bud Tribble on Jobs's "reality distortion field" and noted that he "would occasionally burst into tears at meetings." Perhaps the best quote came from Jef Raskin. Jobs, he declared, "would have made an excellent King of France."

To Jobs's dismay, the magazine made public the existence of the daughter he had forsaken, Lisa Brennan. He knew that Kottke had been the one to tell the magazine about Lisa, and he berated him in the Mac group work space in front of a half dozen people. "When the *Time* reporter asked me if Steve had a daughter named Lisa, I said 'Of course,'" Kottke recalled. "Friends don't let friends deny that they're the father of a child. I'm not going to let my friend be a jerk and deny paternity. He was really angry and felt violated and told me in front of everyone that I had betrayed him."

But what truly devastated Jobs was that he was not, after all, chosen as the Man of the Year. As he later told me:

> *Time* decided they were going to make me Man of the Year, and I was twenty-seven, so I actually cared about stuff like that. I thought it was pretty cool. They sent out Mike Moritz to write a story. We're the same age, and I had been very successful, and I could tell he was jealous and there was an edge to him. He wrote this terrible hatchet job. So the editors in New York get this story and say, "We can't make this guy Man of the Year." That really hurt. But it was a good lesson. It taught me to never get too excited about things like that, since the media is a circus anyway. They FedExed me the magazine, and I remember opening the package, thoroughly expecting to see my mug on the cover, and it was this computer sculpture thing. I thought, "Huh?" And then I read the article, and it was so awful that I actually cried.

In fact there's no reason to believe that Moritz was jealous or that he intended his reporting to be unfair. Nor was Jobs ever slated to be Man of the Year, despite what he thought. That year the top editors (I was then a junior editor there) decided early on to go with the computer rather than a person, and they commissioned, months in advance, a piece of art from the famous sculptor George Segal to be a gatefold cover image. Ray Cave was then the magazine's editor. "We never considered Jobs," he said. "You couldn't personify the computer, so that was the first time we decided to go with an inanimate object. We never searched around for a face to be put on the cover."

Apple launched the Lisa in January 1983—a full year before the Mac was ready—and Jobs paid his $5,000 wager to Couch. Even though he was not part of the Lisa team, Jobs went to New York to do publicity for it in his role as Apple's chairman and poster boy.

He had learned from his public relations consultant Regis McKenna how to dole out exclusive interviews in a dramatic manner. Reporters from anointed publications were ushered in sequentially for their hour with him in his Carlyle Hotel suite, where a Lisa computer was set on a table and surrounded by cut flowers. The publicity plan called for Jobs to focus on the Lisa and not mention the Macintosh, because speculation about it could undermine the Lisa. But Jobs couldn't help himself. In most of the stories based on his interviews that day—in *Time*, *Business Week*, the *Wall Street Journal*, and *Fortune*—the Macintosh was mentioned. "Later this year Apple will introduce a less powerful, less expensive version of Lisa, the Macintosh," *Fortune* reported. "Jobs himself has directed that project." *Business Week* quoted him as saying, "When it comes out, Mac is going to be the most incredible computer in the world." He also admitted that the Mac and the Lisa would not be compatible. It was like launching the Lisa with the kiss of death.

The Lisa did indeed die a slow death. Within two years it would be discontinued. "It was too expensive, and we were trying to sell it to big companies when our expertise was selling to consumers," Jobs later said. But there was a silver lining for Jobs: Within months of Lisa's launch, it became clear that Apple had to pin its hopes on the Macintosh instead.

Let's Be Pirates!

As the Macintosh team grew, it moved from Texaco Towers to the main Apple buildings on Bandley Drive, finally settling in mid-1983 into Bandley 3. It had a modern atrium lobby with video games, which

Burrell Smith and Andy Hertzfeld chose, and a Toshiba compact disc stereo system with MartinLogan speakers and a hundred CDs. The software team was visible from the lobby in a fishbowl-like glass enclosure, and the kitchen was stocked daily with Odwalla juices. Over time the atrium attracted even more toys, most notably a Bösendorfer piano and a BMW motorcycle that Jobs felt would inspire an obsession with lapidary craftsmanship.

Jobs kept a tight rein on the hiring process. The goal was to get people who were creative, wickedly smart, and slightly rebellious. The software team would make applicants play Defender, Smith's favorite video game. Jobs would ask his usual offbeat questions to see how well the applicant could think in unexpected situations. One day he, Hertzfeld, and Smith interviewed a candidate for software manager who, it became clear as soon as he walked in the room, was too uptight and conventional to manage the wizards in the fishbowl. Jobs began to toy with him mercilessly. "How old were you when you lost your virginity?" he asked.

The candidate looked baffled. "What did you say?"

"Are you a virgin?" Jobs asked. The candidate sat there flustered, so Jobs changed the subject. "How many times have you taken LSD?" Hertzfeld recalled, "The poor guy was turning varying shades of red, so I tried to change the subject and asked a straightforward technical question." But when the candidate droned on in his response, Jobs broke in. "Gobble, gobble, gobble, gobble," he said, cracking up Smith and Hertzfeld.

"I guess I'm not the right guy," the poor man said as he got up to leave.

For all of his obnoxious behavior, Jobs also had the ability to instill in his team an esprit de corps. After tearing people down, he would find ways to lift them up and make them feel that being part of the Macintosh project was an amazing mission. Every six months he would take most of his team on a two-day retreat at a nearby resort.

The retreat in September 1982 was at the Pajaro Dunes near Monterey. Fifty or so members of the Mac division sat in the lodge facing a fireplace. Jobs sat on top of a table in front of them. He spoke quietly for a while, then walked to an easel and began posting his thoughts.

The first was "Don't compromise." It was an injunction that would, over time, be both helpful and harmful. Most technology teams made trade-offs. The Mac, on the other hand, would end up being as "insanely great" as Jobs and his acolytes could possibly make it—but it would not ship for another sixteen months, way behind schedule. After mentioning a scheduled completion date, he told them, "It would be better to miss than to turn out the wrong thing." A different type of project manager, willing to make some trade-offs, might try to lock in dates after which no changes could be made. Not Jobs. He displayed another maxim: "It's not done until it ships."

Another chart contained a kōan-like phrase that he later told me was his favorite maxim: "The journey is the reward." The Mac team, he liked to emphasize, was a special corps with an exalted mission. Someday they would all look back on their journey together and, forgetting or laughing off the painful moments, would regard it as a magical high point in their lives.

At the end of the presentation someone asked whether he thought they should do some market research to see what customers wanted. "No," he replied, "because customers don't know what they want until we've shown them." Then he pulled out a device that was about the size of a desk diary. "Do you want to see something neat?" When he flipped it open, it turned out to be a mock-up of a computer that could fit on your lap, with a keyboard and screen hinged together like a notebook. "This is my dream of what we will be making in the mid- to late eighties," he said. They were building a company that would invent the future.

For the next two days there were presentations by various team leaders and the influential computer industry analyst Ben Rosen, with a lot of time in the evenings for pool parties and dancing. At the end, Jobs stood in front of the assemblage and gave a soliloquy. "As every day passes, the work fifty people are doing here is going to send a giant ripple through the universe," he said. "I know I might be a little hard to get along with, but this is the most fun thing I've done in my life."

Years later most of those in the audience would be able to laugh about the "little hard to get along with" episodes and agree with him that creating that giant ripple was the most fun they had in their lives.

The next retreat was at the end of January 1983, the same month the Lisa launched, and there was a shift in tone. Four months earlier Jobs had written on his flip chart: "Don't compromise." This time one of the maxims was "Real artists ship." Nerves were frayed. Atkinson had been left out of the publicity interviews for the Lisa launch, and he marched into Jobs's hotel room and threatened to quit. Jobs tried to minimize the slight, but Atkinson refused to be mollified. Jobs got annoyed. "I don't have time to deal with this now," he said. "I have sixty other people out there who are pouring their hearts into the Macintosh, and they're waiting for me to start the meeting." With that he brushed past Atkinson to go address the faithful.

Jobs proceeded to give a rousing speech in which he claimed that he had resolved the dispute with McIntosh audio labs to use the Macintosh name. (In fact the issue was still being negotiated, but the moment called for a bit of the old reality distortion field.) He pulled out a bottle of mineral water and symbolically christened the prototype onstage. Down the hall, Atkinson heard the loud cheer, and with a sigh joined the group. The ensuing party featured skinny-dipping in the pool, a bonfire on the beach, and loud music that lasted all night, which caused the hotel, La Playa in Carmel, to ask them never to come back.

Another of Jobs's maxims at the retreat was "It's better to be a pirate than to join the navy." He wanted to instill a rebel spirit in his team, to have them behave like swashbucklers who were proud of their work but willing to commandeer from others. As Susan Kare put it, "He meant, 'Let's have a renegade feeling to our group. We can move fast. We can get things done.'" To celebrate Jobs's birthday a few weeks later, the team paid for a billboard on the road to Apple headquarters. It read: "Happy 28th Steve. The Journey is the Reward.—The Pirates."

One of the Mac team's programmers, Steve Capps, decided this new spirit warranted hoisting a Jolly Roger. He cut a patch of black cloth and had Kare paint a skull and crossbones on it. The eye patch she put on the skull was an Apple logo. Late one Sunday night Capps climbed to the roof of their newly built Bandley 3 building and hoisted the flag on a scaffolding pole that the construction workers had left behind. It waved proudly for a few weeks, until members of the Lisa team, in a late-night foray, stole the flag and sent their Mac rivals a ransom note. Capps led a raid to recover it and was able to wrestle it from a secretary who was guarding it for the Lisa team. Some of the grown-ups overseeing Apple worried that Jobs's buccaneer spirit was getting out of hand. "Flying that flag was really stupid," said Arthur Rock. "It was telling the rest of the company they were no good." But Jobs loved it, and he made sure it waved proudly all the way through to the completion of the Mac project. "We were the renegades, and we wanted people to know it," he recalled.

Veterans of the Mac team had learned that they could stand up to Jobs. If they knew what they were talking about, he would tolerate the pushback, even admire it. By 1983 those most familiar with his reality distortion field had discovered something further: They could, if necessary, just quietly disregard what he decreed. If they turned out to be right, he would appreciate their renegade attitude and willingness to ignore authority. After all, that's what he did.

By far the most important example of this involved the choice of a disk drive for the Macintosh. Apple had a corporate division that built mass-storage devices, and it had developed a disk-drive system, code-named Twiggy, that could read and write onto those thin, delicate 5¼-inch floppy disks that older readers (who also remember Twiggy the model) will recall. But by the time the Lisa was ready to ship in the spring of 1983, it was clear that the Twiggy was buggy. Because the Lisa also came with a hard-disk drive, this was not a complete disaster. But the Mac had no hard disk, so it faced a crisis. "The Mac team was beginning to panic," said Hertzfeld. "We were using a single Twiggy drive, and we didn't have a hard disk to fall back on."

The team discussed the problem at the January 1983 retreat, and Debi Coleman gave Jobs data about the Twiggy failure rate. A few days later he drove to Apple's factory in San Jose to see the Twiggy being made. More than half were rejected. Jobs erupted. With his face flushed, he began shouting and sputtering about firing everyone who worked there. Bob Belleville, the head of the Mac engineering team, gently guided him to the parking lot, where they could take a walk and talk about alternatives.

One possibility that Belleville had been exploring was to use a new 3½-inch disk drive that Sony had developed. The disk was cased in sturdier plastic and could fit into a shirt pocket. Another option was to have a clone of Sony's 3½-inch disk drive manufactured by a smaller Japanese supplier, the Alps Electronics Co., which had been supplying disk drives for the Apple II. Alps had already licensed the technology from Sony, and if they could build their own version in time it would be much cheaper.

Jobs and Belleville, along with Apple veteran Rod Holt (the guy Jobs enlisted to design the first power supply for the Apple II), flew to Japan to figure out what to do. They took the bullet train from Tokyo to visit the Alps facility. The engineers there didn't even have a working prototype, just a crude model. Jobs thought it was great, but Belleville was appalled. There was no way, he thought, that Alps could have it ready for the Mac within a year.

As they proceeded to visit other Japanese companies, Jobs was on his worst behavior. He wore jeans and sneakers to meetings with Japanese managers in dark suits. When they formally handed him little gifts, as was the custom, he often left them behind, and he never reciprocated with gifts of his own. He would sneer when rows of engineers lined up to greet him, bow, and politely offer their products for inspection. Jobs hated both the devices and the obsequiousness. "What are you showing me *this* for?" he snapped at one stop. "This is a piece of crap! *Anybody* could build a better drive than this." Although most of his hosts were appalled, some seemed amused. They had heard tales of his obnoxious style and brash behavior, and now they were getting to see it in full display.

The final stop was the Sony factory, located in a drab suburb of Tokyo. To Jobs, it looked messy and inelegant. A lot of the work was done by hand. He hated it. Back at the hotel, Belleville argued for going with the Sony disk drive. It was ready to use. Jobs disagreed. He decided that they would work with Alps to produce their own drive, and he ordered Belleville to cease all work with Sony.

Belleville decided it was best to partially ignore Jobs, and he asked a Sony executive to get its disk drive ready for use in the Macintosh. If and when it became clear that Alps could not deliver on time, Apple would switch to Sony. So Sony sent over the engineer who had developed the drive, Hidetoshi Komoto, a Purdue graduate who fortunately possessed a good sense of humor about his clandestine task.

Whenever Jobs would come from his corporate office to visit the Mac team's engineers—which was almost every afternoon—they would hurriedly find somewhere for Komoto to hide. At one point Jobs ran into him at a newsstand in Cupertino and recognized him from the meeting in Japan, but he didn't suspect anything. The closest call was when Jobs came bustling onto the Mac work space unexpectedly one day while Komoto was sitting in one of the cubicles. A Mac engineer grabbed him and pointed him to a janitorial closet. "Quick, hide in this closet. Please! Now!" Komoto looked confused, Hertzfeld recalled, but he jumped up and did as told. He had to stay in the closet for five minutes, until Jobs left. The Mac engineers apologized. "No problem," he replied. "But American business practices, they are very strange. Very strange."

Belleville's prediction came true. In May 1983 the folks at Alps admitted it would take them at least eighteen more months to get their clone of the Sony drive into production. At a retreat in Pajaro Dunes, Markkula grilled Jobs on what he was going to do. Finally, Belleville interrupted and said that he might have an alternative to the Alps drive ready soon. Jobs looked baffled for just a moment, and then it became clear to him why he'd glimpsed Sony's top disk designer in Cupertino. "You son of a bitch!" Jobs said. But it was not in anger. There was a big grin on his face. As soon as he realized what Belleville and the other engineers had done behind his back, said Hertzfeld, "Steve swallowed his pride and thanked them for disobeying him and doing the right thing." It was, after all, what he would have done in their situation.

six hours of sleep, he drove back to the office. He wanted to check in to see if there had been any problems, and most of his colleagues had done the same. They were lounging around, dazed but excited, when Jobs walked in. "Hey, pick yourselves up off the floor, you're not done yet!" he announced. "We need a demo for the intro!" His plan was to dramatically unveil the Macintosh in front of a large audience and have it show off some of its features to the inspirational theme from *Chariots of Fire*. "It needs to be done by the weekend, to be ready for the rehearsals," he added. They all groaned, Hertzfeld recalled, "but as we talked we realized that it would be fun to cook up something impressive."

The launch event was scheduled for the Apple annual stockholders' meeting on January 24—eight days away—at the Flint Auditorium of De Anza Community College. The television ad and the frenzy of press preview stories were the first two components in what would become the Steve Jobs playbook for making the introduction of a new product seem like an epochal moment in world history. The third component was the public unveiling of the product itself, amid fanfare and flourishes, in front of an audience of adoring faithful mixed with journalists who were primed to be swept up in the excitement.

Hertzfeld pulled off the remarkable feat of writing a music player in two days so that the computer could play the *Chariots of Fire* theme. But when Jobs heard it, he judged it lousy, so they decided to use a recording instead. At the same time, Jobs was thrilled with a speech generator that turned text into spoken words with a charming electronic accent, and he decided to make it part of the demo. "I want the Macintosh to be the first computer to introduce itself!" he insisted.

At the rehearsal the night before the launch, nothing was working well. Jobs hated the way the animation scrolled across the Macintosh screen, and he kept ordering tweaks. He also was dissatisfied with the stage lighting, and he directed Sculley to move from seat to seat to give his opinion as various adjustments were made. Sculley had never thought much about variations of stage lighting and gave the type of tentative answers a patient might give an eye doctor when asked which lens made the letters clearer. The rehearsals and changes went on for five hours, well into the night. "He was driving people insane, getting mad at the stagehands for every glitch in the presentation," Sculley recalled. "I thought there was no way we were going to get it done for the show the next morning."

Most of all, Jobs fretted about his presentation. Sculley fancied himself a good writer, so he suggested changes in Jobs's script. Jobs recalled being slightly annoyed, but their relationship was still in the phase when he was lathering on flattery and stroking Sculley's ego. "I think of you just like Woz and Markkula," he told Sculley. "You're like one of the founders of the company. They founded the company, but you and I are founding the future." Sculley lapped it up.

The next morning the 2,600-seat auditorium was mobbed. Jobs arrived in a double-breasted blue blazer, a starched white shirt, and a pale green bow tie. "This is the most important moment in my entire life," he told Sculley as they waited backstage for the program to begin. "I'm really nervous. You're probably the only person who knows how I feel about this." Sculley grasped his hand, held it for a moment, and whispered "Good luck."

As chairman of the company, Jobs went onstage first to start the shareholders' meeting. He did so with his own form of an invocation. "I'd like to open the meeting," he said, "with a twenty-year-old poem by Dylan—that's Bob Dylan." He broke into a little smile, then looked down to read from the second verse of "The Times They Are a-Changin'." His voice was high-pitched as he raced through the ten lines, ending with "For the loser now / Will be later to win / For the times they are a-changin'." That song was the anthem that kept the multimillionaire board chairman in touch with his counterculture self-image. He had a bootleg copy of his favorite version, which was from the live concert Dylan performed, with Joan Baez, on Halloween 1964 at Lincoln Center's Philharmonic Hall.

Sculley came onstage to report on the company's earnings, and the audience started to become restless as he droned on. Finally, he ended with a personal note. "The most important thing that has happened to me in the last nine months at Apple has been a chance to develop a friendship with Steve Jobs," he said. "For me, the rapport we have developed means an awful lot."

The lights dimmed as Jobs reappeared onstage and launched into a dramatic version of the battle cry he had delivered at the Hawaii sales conference. "It is 1958," he began. "IBM passes up a chance to buy a young fledgling company that has invented a new technology called xerography. Two years later, Xerox was born, and IBM has been kicking themselves ever since." The crowd laughed. Hertzfeld had heard versions of the speech both in Hawaii and elsewhere, but he was struck by how this time it was pulsing with more passion. After recounting other IBM missteps, Jobs picked up the pace and the emotion as he built toward the present:

> It is now 1984. It appears that IBM wants it all. Apple is perceived to be the only hope to offer IBM a run for its money. Dealers, after initially welcoming IBM with open arms, now fear an IBM-dominated and -controlled future and are turning back to Apple as the only force who can ensure their future freedom. IBM wants it all, and is aiming its guns at its last obstacle to industry control, Apple. Will Big Blue dominate the entire computer industry? The entire information age? Was George Orwell right?

As he built to the climax, the audience went from murmuring to applauding to a frenzy of cheering and chanting. But before they could answer the Orwell question, the auditorium went black and the "1984" commercial appeared on the screen. When it was over, the entire audience was on its feet cheering.

With a flair for the dramatic, Jobs walked across the dark stage to a small table with a cloth bag on it. "Now I'd like to show you Macintosh in person," he said. He took out the computer, keyboard, and mouse, hooked them together deftly, then pulled one of the new 3½-inch floppies from his shirt pocket. The theme from *Chariots of Fire* began to play. Jobs held his breath for a moment, because the demo had not worked well the night before. But this time it ran flawlessly. The word "MACINTOSH" scrolled horizontally onscreen, then underneath it the words "Insanely great" appeared in script, as if being slowly written by hand. Not used to such beautiful graphic displays, the audience quieted for a moment. A few gasps could be heard. And then, in rapid succession, came a series of screen shots: Bill Atkinson's QuickDraw graphics package followed by displays of different fonts, documents, charts, drawings, a chess game, a spreadsheet, and a rendering of Steve Jobs with a thought bubble containing a Macintosh.

When it was over, Jobs smiled and offered a treat. "We've done a lot of talking about Macintosh recently," he said. "But today, for the first time ever, I'd like to let Macintosh speak for itself." With that, he strolled back over to the computer, pressed the button on the mouse, and in a vibrato but endearing electronic deep voice, Macintosh became the first computer to introduce itself. "Hello. I'm Macintosh. It sure is great to get out of that bag," it began. The only thing it didn't seem to know how to do was to wait for the wild cheering and shrieks that erupted. Instead of basking for a moment, it barreled ahead. "Unaccustomed as I am to public speaking, I'd like to share with you a maxim I thought of the first time I met an IBM mainframe: Never trust a computer you can't lift." Once again the roar almost drowned out its final lines. "Obviously, I can talk. But right now I'd like to sit back and listen. So it is with considerable pride that I introduce a man who's been like a father to me, Steve Jobs."

Pandemonium erupted, with people in the crowd jumping up and down and pumping their fists in a frenzy. Jobs nodded slowly, a tight-lipped but broad smile on his face, then looked down and started to choke up. The ovation continued for five minutes.

After the Macintosh team returned to Bandley 3 that afternoon, a truck pulled into the parking lot and Jobs had them all gather next to it. Inside were a hundred new Macintosh computers, each personalized with a plaque. "Steve presented them one at a time to each team member, with a handshake and a smile, as the rest of us stood around cheering," Hertzfeld recalled. It had been a grueling ride, and many egos had been bruised by Jobs's obnoxious and rough management style. But neither Raskin nor Wozniak nor Sculley nor anyone else at the company could have pulled off the creation of the Macintosh. Nor would it likely have emerged from focus groups and committees. On the day he unveiled the Macintosh, a reporter from *Popular Science* asked Jobs what type of market research he had done. Jobs responded by scoffing, "Did Alexander Graham Bell do any market research before he invented the telephone?"

CHAPTER SIXTEEN

GATES AND JOBS

When Orbits Intersect

Jobs and Gates, 1991

The Macintosh Partnership

In astronomy, a binary system occurs when the orbits of two stars are linked because of their gravitational interaction. There have been analogous situations in history, when an era is shaped by the relationship and rivalry of two orbiting superstars: Albert Einstein and Niels Bohr in twentieth-century physics, for example, or Thomas Jefferson and Alexander Hamilton in early American governance. For the first thirty years of the personal computer age, beginning in the late 1970s, the defining binary star system was composed of two high-energy college dropouts both born in 1955.

Bill Gates and Steve Jobs, despite their similar ambitions at the confluence of technology and business, had very different personalities and backgrounds. Gates's father was a prominent Seattle lawyer, his mother a civic leader on a variety of prestigious boards. He became a tech geek at the area's finest private school, Lakeside High, but he was never a rebel, hippie, spiritual seeker, or member of the counterculture. Instead of a Blue Box to rip off the phone company, Gates created for his school a program for scheduling classes, which helped him get into ones with the right girls, and a car-counting program for local traffic engineers. He went to Harvard, and when he decided to drop out it was not to find enlightenment with an Indian guru but to start a computer software company.

Gates was good at computer coding, unlike Jobs, and his mind was more practical, disciplined, and abundant in analytic processing power. Jobs was more intuitive and romantic and had a greater instinct for making technology usable, design delightful, and interfaces friendly. He had a passion for perfection, which made him fiercely demanding, and he managed by charisma and scattershot intensity. Gates was more methodical; he held tightly scheduled product review meetings where he would cut to the heart of issues with lapidary skill. Both could be rude, but with Gates—who early in his career seemed to have a typical geek's flirtation with the fringes of the Asperger's scale—the cutting behavior tended to be less personal, based more on intellectual incisiveness than emotional callousness. Jobs would stare at people with a burning, wounding intensity; Gates sometimes had trouble making eye contact, but he was fundamentally humane.

"Each one thought he was smarter than the other one, but Steve generally treated Bill as someone who was slightly inferior, especially in matters of taste and style," said Andy Hertzfeld. "Bill looked down on Steve because he couldn't actually program." From the beginning of their relationship, Gates was fascinated by Jobs and slightly envious of his mesmerizing effect on people. But he also found him "fundamentally odd" and "weirdly flawed as a human being," and he was put off by Jobs's rudeness and his tendency to be "either in the mode of saying you were shit or trying to seduce you." For his part, Jobs found Gates unnervingly narrow. "He'd be a broader guy if he had dropped acid once or gone off to an ashram when he was younger," Jobs once declared.

Their differences in personality and character would lead them to opposite sides of what would become the fundamental divide in the digital age. Jobs was a perfectionist who craved control and indulged in the uncompromising temperament of an artist; he and Apple became the exemplars of a digital strategy that tightly integrated hardware, software, and content into a seamless package. Gates was a smart, calculating, and pragmatic analyst of business and technology; he was open to licensing Microsoft's operating system and software to a variety of manufacturers.

After thirty years Gates would develop a grudging respect for Jobs. "He really never knew much about technology, but he had an amazing instinct for what works," he said. But Jobs never reciprocated by fully appreciating Gates's real strengths. "Bill is basically unimaginative and has never invented anything, which is why I think he's more comfortable now in philanthropy than technology," Jobs said, unfairly. "He just shamelessly ripped off other people's ideas."

When the Macintosh was first being developed, Jobs went up to visit Gates at his office near Seattle. Microsoft had written some applications for the Apple II, including a spreadsheet program called Multiplan, and Jobs wanted to excite Gates and Co. about doing even more for the forthcoming Macintosh. Sitting in Gates's conference room, Jobs spun an enticing vision of a computer for the masses, with a friendly interface, which would be churned out by the millions in an automated California factory. His description of the dream factory sucking in the California silicon components and turning out finished Macintoshes caused the Microsoft team to code-name the project "Sand." They even reverse-engineered it into an acronym, for "Steve's amazing new device."

Gates had launched Microsoft by writing a version of BASIC, a programming language, for the Altair. Jobs wanted Microsoft to write a version of BASIC for the Macintosh, because Wozniak—despite much prodding by Jobs—had never enhanced his version of the Apple II's BASIC to handle floating-point numbers. In addition, Jobs wanted Microsoft to write application software—such as word processing and spreadsheet programs—for the Macintosh. At the time, Jobs was a king and Gates still a courtier: In 1982 Apple's annual sales were $1 billion, while Microsoft's were a mere $32 million. Gates signed on to do graphical versions of a new spreadsheet called Excel, a word-processing program called Word, and BASIC.

Gates frequently went to Cupertino for demonstrations of the Macintosh operating system, and he was not very impressed. "I remember the first time we went down, Steve had this app where it was just things bouncing around on the screen," he said. "That was the only app that ran." Gates was also put off by Jobs's attitude. "It was kind of a weird seduction visit, where Steve was saying, 'We don't really need you and we're doing this great thing, and it's under the cover.' He's in his Steve Jobs sales mode, but kind of the sales mode that also says, 'I don't need you, but I might let you be involved.' "

The Macintosh pirates found Gates hard to take. "You could tell that Bill Gates was not a very good listener. He couldn't bear to have anyone explain how something worked to him—he had to leap ahead instead and guess about how he thought it would work," Hertzfeld recalled. They showed him how the Macintosh's cursor moved smoothly across the screen without flickering. "What kind of hardware do you use to draw the cursor?" Gates asked. Hertzfeld, who took great pride that they could achieve their functionality solely using software, replied, "We don't have any special hardware for it!" Gates insisted that it was necessary to have special hardware to move the cursor that way. "So what do you say to somebody like that?" Bruce Horn, one of the Macintosh engineers, later said. "It made it clear to me that Gates was not the kind of person that would understand or appreciate the elegance of a Macintosh."

Despite their mutual wariness, both teams were excited by the prospect that Microsoft would create graphical software for the Macintosh that would take personal computing into a new realm, and they went to dinner at a fancy restaurant to celebrate. Microsoft soon dedicated a large team to the task. "We had more people working on the Mac than he did," Gates said. "He had about fourteen or fifteen people. We had like twenty people. We really bet our life on it." And even though

Jobs thought that they didn't exhibit much taste, the Microsoft programmers were persistent. "They came out with applications that were terrible," Jobs recalled, "but they kept at it and they made them better." Eventually Jobs became so enamored of Excel that he made a secret bargain with Gates: If Microsoft would make Excel exclusively for the Macintosh for two years, and not make a version for IBM PCs, then Jobs would shut down his team working on a version of BASIC for the Macintosh and instead indefinitely license Microsoft's BASIC. Gates smartly took the deal, which infuriated the Apple team whose project got canceled and gave Microsoft a lever in future negotiations.

For the time being, Gates and Jobs forged a bond. That summer they went to a conference hosted by the industry analyst Ben Rosen at a Playboy Club retreat in Lake Geneva, Wisconsin, where nobody knew about the graphical interfaces that Apple was developing. "Everybody was acting like the IBM PC was everything, which was nice, but Steve and I were kind of smiling that, hey, we've got something," Gates recalled. "And he's kind of leaking, but nobody actually caught on." Gates became a regular at Apple retreats. "I went to every luau," said Gates. "I was part of the crew."

Gates enjoyed his frequent visits to Cupertino, where he got to watch Jobs interact erratically with his employees and display his obsessions. "Steve was in his ultimate pied piper mode, proclaiming how the Mac will change the world and overworking people like mad, with incredible tensions and complex personal relationships." Sometimes Jobs would begin on a high, then lapse into sharing his fears with Gates. "We'd go down Friday night, have dinner, and Steve would just be promoting that everything is great. Then the second day, without fail, he'd be kind of, 'Oh shit, is this thing going to sell, oh God, I have to raise the price, I'm sorry I did that to you, and my team is a bunch of idiots.'"

Gates saw Jobs's reality distortion field at play when the Xerox Star was launched. At a joint team dinner one Friday night, Jobs asked Gates how many Stars had been sold thus far. Gates said six hundred. The next day, in front of Gates and the whole team, Jobs said that three hundred Stars had been sold, forgetting that Gates had just told everyone it was actually six hundred. "So his whole team starts looking at me like, 'Are you going to tell him that he's full of shit?' " Gates recalled. "And in that case I didn't take the bait." On another occasion Jobs and his team were visiting Microsoft and having dinner at the Seattle Tennis Club. Jobs launched into a sermon about how the Macintosh and its software would be so easy to use that there would be no manuals. "It was like anybody who ever thought that there would be a manual for any Mac application was the greatest idiot," said Gates. "And we were like, 'Does he really mean it? Should we not tell him that we have people who are actually working on manuals?' "

After a while the relationship became bumpier. The original plan was to have some of the Microsoft applications—such as Excel, Chart, and File—carry the Apple logo and come bundled with the purchase of a Macintosh. "We were going to get $10 per app, per machine," said Gates. But this arrangement upset competing software makers. In addition, it seemed that some of Microsoft's programs might be late. So Jobs invoked a provision in his deal with Microsoft and decided not to bundle its software; Microsoft would have to scramble to distribute its software as products sold directly to consumers.

Gates went along without much complaint. He was already getting used to the fact that, as he put it, Jobs could "play fast and loose," and he suspected that the unbundling would actually help Microsoft. "We could make more money selling our software separately," Gates said. "It works better that way if you're willing to think you're going to have reasonable market share." Microsoft ended up making its software for various other platforms, and it began to give priority to the IBM PC version of Microsoft Word rather than the Macintosh version. In the end, Jobs's decision to back out of the bundling deal hurt Apple more than it did Microsoft.

When Excel for the Macintosh was released, Jobs and Gates unveiled it together at a press dinner at New York's Tavern on the Green. Asked if Microsoft would make a version of it for IBM PCs, Gates did not reveal the bargain he had made with Jobs but merely answered that "in time" that might happen. Jobs took the microphone. "I'm sure 'in time' we'll all be dead," he joked.

The Battle of the GUI

At that time, Microsoft was producing an operating system, known as DOS, which it licensed to IBM and compatible computers. It was based on an old-fashioned command line interface that confronted users with surly little prompts such as C:\>. As Jobs and his team began to work closely with Microsoft, they grew worried that it would copy Macintosh's graphical user interface. Andy Hertzfeld noticed that his contact at Microsoft was asking detailed questions about how the Macintosh operating system worked. "I told Steve that I suspected that Microsoft was going to clone the Mac," he recalled.

They were right to worry. Gates believed that graphical interfaces were the future, and that Microsoft had just as much right as Apple did to copy what had been developed at Xerox PARC. As he freely admitted later, "We sort of say, 'Hey, we believe in graphics interfaces, we saw the Xerox Alto too.' "

In their original deal, Jobs had convinced Gates to agree that Microsoft would not create graphical software for anyone other than Apple until a year after the Macintosh shipped in January 1983. Unfortunately for Apple, it did not provide for the possibility that the Macintosh launch would be delayed for a year. So Gates was within his rights when, in November 1983, he revealed that Microsoft planned to develop a new operating system for IBM PCs featuring a graphical interface with windows, icons, and a mouse for point-and-click navigation. It would be called Windows. Gates hosted a Jobs-like product announcement, the most lavish thus far in Microsoft's history, at the Helmsley Palace Hotel in New York.

Jobs was furious. He knew there was little he could do about it—Microsoft's deal with Apple not to do competing graphical software was running out—but he lashed out nonetheless. "Get Gates down here immediately," he ordered Mike Boich, who was Apple's evangelist to other software companies. Gates arrived, alone and willing to discuss things with Jobs. "He called me down to get pissed off at me," Gates recalled. "I went down to Cupertino, like a command performance. I told him, 'We're doing Windows.' I said to him, 'We're betting our company on graphical interfaces.' "

They met in Jobs's conference room, where Gates found himself surrounded by ten Apple employees who were eager to watch their boss assail him. Jobs didn't disappoint his troops. "You're ripping us off!" he shouted. "I trusted you, and now you're stealing from us!" Hertzfeld recalled that Gates just sat there coolly, looking Steve in the eye, before hurling back, in his squeaky voice, what became a classic zinger. "Well, Steve, I think there's more than one way of looking at it. I think it's more like we both had this rich neighbor named Xerox and I broke into his house to steal the TV set and found out that you had already stolen it."

Gates's two-day visit provoked the full range of Jobs's emotional responses and manipulation techniques. It also made clear that the Apple-Microsoft symbiosis had become a scorpion dance, with both sides circling warily, knowing that a sting by either could cause problems for both. After the confrontation in the conference room, Gates quietly gave Jobs a private demo of what was being planned for Windows. "Steve didn't know what to say," Gates recalled. "He could either say, 'Oh, this is a violation of something,' but he didn't. He chose to say, 'Oh, it's actually really a piece of shit.' " Gates was thrilled, because it gave him a chance to calm Jobs down for a moment. "I said, 'Yes, it's a nice little piece of shit.' " So Jobs went through a gamut of other emotions. "During the course of this meeting, he's just ruder than shit," Gates said. "And then there's a part where he's almost crying, like, 'Oh, just give me a chance to get this thing off.' " Gates responded by becoming very calm. "I'm good at when people are emotional, I'm kind of less emotional."

As he often did when he wanted to have a serious conversation, Jobs suggested they go on a long walk. They trekked the streets of Cupertino, back and forth to De Anza college, stopping at a diner and then walking some more. "We had to take a walk, which is not one of my management techniques," Gates said. "That was when he began saying things like, 'Okay, okay, but don't make it too much like what we're doing.' "

As it turned out, Microsoft wasn't able to get Windows 1.0 ready for shipping until the fall of 1985. Even then, it was a shoddy product. It lacked the elegance of the Macintosh interface, and it had tiled windows rather than the magical clipping of overlapping windows that Bill Atkinson had devised. Reviewers ridiculed it and consumers spurned it. Nevertheless, as is often the case with Microsoft products, persistence eventually made Windows better and then dominant.

Jobs never got over his anger. "They just ripped us off completely, because Gates has no shame," Jobs told me almost thirty years later. Upon hearing this, Gates responded, "If he believes that, he really has entered into one of his own reality distortion fields." In a legal sense, Gates was right, as courts over the years have subsequently ruled. And on a practical level, he had a strong case as well. Even though Apple made a deal for the right to use what it saw at Xerox PARC, it was inevitable that other companies would develop similar graphical interfaces. As Apple found out, the "look and feel" of a computer interface design is a hard thing to protect.

And yet Jobs's dismay was understandable. Apple had been more innovative, imaginative, elegant in execution, and brilliant in design. But even though Microsoft created a crudely copied series of products, it would end up winning the war of operating systems. This exposed an aesthetic flaw in how the universe worked: The best and most innovative products don't always win. A decade later, this truism caused Jobs to let loose a rant that was somewhat arrogant and over-the-top, but also had a whiff of truth to it. "The only problem with Microsoft is they just have no taste, they have absolutely no taste," he said. "I don't mean that in a small way. I mean that in a big way, in the sense that they don't think of original ideas and they don't bring much culture into their product."

CHAPTER SEVENTEEN

ICARUS

What Goes Up . . .

Flying High

The launch of the Macintosh in January 1984 propelled Jobs into an even higher orbit of celebrity, as was evident during a trip to Manhattan he took at the time. He went to a party that Yoko Ono threw for her son, Sean Lennon, and gave the nine-year-old a Macintosh. The boy loved it. The artists Andy Warhol and Keith Haring were there, and they were so enthralled by what they could create with the machine that the contemporary art world almost took an ominous turn. "I drew a circle," Warhol exclaimed proudly after using QuickDraw. Warhol insisted that Jobs take a computer to Mick Jagger. When Jobs arrived at the rock star's townhouse, Jagger seemed baffled. He didn't quite know who Jobs was. Later Jobs told his team, "I think he was on drugs. Either that or he's brain-damaged." Jagger's daughter Jade, however, took to the computer immediately and started drawing with MacPaint, so Jobs gave it to her instead.

He bought the top-floor duplex apartment that he'd shown Sculley in the San Remo on Manhattan's Central Park West and hired James Freed of I. M. Pei's firm to renovate it, but he never moved in. (He would later sell it to Bono for $15 million.) He also bought an old

Spanish colonial–style fourteen-bedroom mansion in Woodside, in the hills above Palo Alto, that had been built by a copper baron, which he moved into but never got around to furnishing.

At Apple his status revived. Instead of seeking ways to curtail Jobs's authority, Sculley gave him more: The Lisa and Macintosh divisions were folded together, with Jobs in charge. He was flying high, but this did not serve to make him more mellow. Indeed there was a memorable display of his brutal honesty when he stood in front of the combined Lisa and Macintosh teams to describe how they would be merged. His Macintosh group leaders would get all of the top positions, he said, and a quarter of the Lisa staff would be laid off. "You guys failed," he said, looking directly at those who had worked on the Lisa. "You're a B team. B players. Too many people here are B or C players, so today we are releasing some of you to have the opportunity to work at our sister companies here in the valley."

Bill Atkinson, who had worked on both teams, thought it was not only callous, but unfair. "These people had worked really hard and were brilliant engineers," he said. But Jobs had latched onto what he believed was a key management lesson from his Macintosh experience: You have to be ruthless if you want to build a team of A players. "It's too easy, as a team grows, to put up with a few B players, and they then attract a few more B players, and soon you will even have some C players," he recalled. "The Macintosh experience taught me that A players like to work only with other A players, which means you can't indulge B players."

For the time being, Jobs and Sculley were able to convince themselves that their friendship was still strong. They professed their fondness so effusively and often that they sounded like high school sweethearts at a Hallmark card display. The first anniversary of Sculley's arrival came in May 1984, and to celebrate Jobs lured him to a dinner party at Le Mouton Noir, an elegant restaurant in the hills southwest of Cupertino. To Sculley's surprise, Jobs had gathered the Apple board, its top managers, and even some East Coast investors. As they all congratulated him during cocktails, Sculley recalled, "a beaming Steve stood in the background, nodding his head up and down and wearing a Cheshire Cat smile on his face." Jobs began the dinner with a fulsome toast. "The happiest two days for me were when Macintosh shipped and when John Sculley agreed to join Apple," he said. "This has been the greatest year I've ever had in my whole life, because I've learned so much from John." He then presented Sculley with a montage of memorabilia from the year.

In response, Sculley effused about the joys of being Jobs's partner for the past year, and he concluded with a line that, for different reasons, everyone at the table found memorable. "Apple has one leader," he said, "Steve and me." He looked across the room, caught Jobs's eye, and watched him smile. "It was as if we were communicating with each other," Sculley recalled. But he also noticed that Arthur Rock and some of the others were looking quizzical, perhaps even skeptical. They were worried that Jobs was completely rolling him. They had hired Sculley to control Jobs, and now it was clear that Jobs was the one in control. "Sculley was so eager for Steve's approval that he was unable to stand up to him," Rock recalled.

Keeping Jobs happy and deferring to his expertise may have seemed like a smart strategy to Sculley. But he failed to realize that it was not in Jobs's nature to share control. Deference did not come naturally to him. He began to become more vocal about how he thought the company should be run. At the 1984 business strategy meeting, for example, he pushed to make the company's centralized sales and marketing staffs bid on the right to provide their services to the various product divisions. (This would have meant, for example, that the Macintosh group could decide not to use Apple's marketing team and instead create one of its own.) No one else was in favor, but Jobs kept trying to ram it through. "People were looking to me to take control, to get him to sit down and shut up, but I didn't," Sculley recalled. As the meeting broke up, he heard someone whisper, "Why doesn't Sculley shut him up?"

When Jobs decided to build a state-of-the-art factory in Fremont to manufacture the Macintosh, his aesthetic passions and controlling nature kicked into high gear. He wanted the machinery to be painted in bright hues, like the Apple logo, but he spent so much time going over paint chips that Apple's manufacturing director, Matt Carter, finally just installed them in their usual beige and gray. When Jobs took a tour, he ordered that the machines be repainted in the bright colors he wanted. Carter objected; this was precision equipment, and repainting the machines could cause problems. He turned out to be right. One of the most expensive machines, which got painted bright blue, ended up not working properly and was dubbed "Steve's folly." Finally Carter quit. "It took so much energy to fight him, and it was usually over something so pointless that finally I had enough," he recalled.

Jobs tapped as a replacement Debi Coleman, the spunky but good-natured Macintosh financial officer who had once won the team's annual award for the person who best stood up to Jobs. But she knew how to cater to his whims when necessary. When Apple's art director, Clement Mok, informed her that Jobs wanted the walls to be pure white, she protested, "You can't paint a factory pure white. There's going to be dust and stuff all over." Mok replied, "There's no white that's too white for Steve." She ended up going along. With its pure white walls and its bright blue, yellow, and red machines, the factory floor "looked like an Alexander Calder showcase," said Coleman.

When asked about his obsessive concern over the look of the factory, Jobs said it was a way to ensure a passion for perfection:

> I'd go out to the factory, and I'd put on a white glove to check for dust. I'd find it everywhere—on machines, on the tops of the racks, on the floor. And I'd ask Debi to get it cleaned. I told her I thought we should be able to eat off the floor of the factory. Well, this drove Debi up the wall. She didn't understand why. And I couldn't articulate it back then. See, I'd been very influenced by what I'd seen in Japan. Part of what I greatly admired there—and part of what we were lacking in our factory—was a sense of teamwork and discipline. If we didn't have the discipline to keep that place spotless, then we weren't going to have the discipline to keep all these machines running.

One Sunday morning Jobs brought his father to see the factory. Paul Jobs had always been fastidious about making sure that his craftsmanship was exacting and his tools in order, and his son was proud to show that he could do the same. Coleman came along to give the tour. "Steve was, like, beaming," she recalled. "He was so proud to show his father this creation." Jobs explained how everything worked, and his father seemed truly admiring. "He kept looking at his father, who touched everything and loved how clean and perfect everything looked."

Things were not quite as sweet when Danielle Mitterrand toured the factory. The Cuba-admiring wife of France's socialist president François Mitterrand asked a lot of questions, through her translator, about the working conditions, while Jobs, who had grabbed Alain Rossmann to serve as his translator, kept trying to explain the advanced robotics and technology. After Jobs talked about the just-in-time production schedules, she asked about overtime pay. He was annoyed, so he described how automation helped him keep down labor costs, a subject he knew would not delight her. "Is it hard work?" she asked. "How much vacation time do they get?" Jobs couldn't contain himself. "If she's so interested in their welfare," he said to her translator, "tell her she can come work here any time." The translator turned pale and said nothing. After a moment Rossmann stepped in to say, in French, "M. Jobs says he thanks you for your visit and your interest in the factory." Neither Jobs nor Madame Mitterrand knew what happened, Rossmann recalled, but her translator looked very relieved.

Afterward, as he sped his Mercedes down the freeway toward Cupertino, Jobs fumed to Rossmann about Madame Mitterrand's attitude. At one point he was going just over 100 miles per hour when a policeman stopped him and began writing a ticket. After a few minutes, as the officer scribbled away, Jobs honked. "Excuse me?" the policeman said. Jobs replied, "I'm in a hurry." Amazingly, the officer didn't get mad. He simply finished writing the ticket and warned that if Jobs was caught going over 55 again he would be sent to jail. As soon as the policeman left, Jobs got back on the road and accelerated to 100. "He absolutely believed that the normal rules didn't apply to him," Rossmann marveled.

His wife, Joanna Hoffman, saw the same thing when she accompanied Jobs to Europe a few months after the Macintosh was launched. "He was just completely obnoxious and thinking he could get away with anything," she recalled. In Paris she had arranged a formal dinner with French software developers, but Jobs suddenly decided he didn't want to go. Instead he shut the car door on Hoffman and told her he was going to see the poster artist Folon instead. "The developers were so pissed off they wouldn't shake our hands," she said.

In Italy, he took an instant dislike to Apple's general manager, a soft rotund guy who had come from a conventional business. Jobs told him bluntly that he was not impressed with his team or his sales strategy. "You don't deserve to be able to sell the Mac," Jobs said coldly. But that was mild compared to his reaction to the restaurant the hapless manager had chosen. Jobs demanded a vegan meal, but the waiter very elaborately proceeded to dish out a sauce filled with sour cream. Jobs got so nasty that Hoffman had to threaten him. She whispered that if he didn't calm down, she was going to pour her hot coffee on his lap.

The most substantive disagreements Jobs had on the European trip concerned sales forecasts. Using his reality distortion field, Jobs was always pushing his team to come up with higher projections. He kept threatening the European managers that he wouldn't give them any allocations unless they projected bigger forecasts. They insisted on being realistic, and Hoffmann had to referee. "By the end of the trip, my whole body was shaking uncontrollably," Hoffman recalled.

It was on this trip that Jobs first got to know Jean-Louis Gassée, Apple's manager in France. Gassée was among the few to stand up successfully to Jobs on the trip. "He has his own way with the truth," Gassée later remarked. "The only way to deal with him was to outbully him." When Jobs made his usual threat about cutting down on France's allocations if Gassée didn't jack up sales projections, Gassée got angry. "I remember grabbing his lapel and telling him to stop, and then he backed down. I used to be an angry man myself. I am a recovering assaholic. So I could recognize that in Steve."

Gassée was impressed, however, at how Jobs could turn on the charm when he wanted to. François Mitterrand had been preaching the gospel of *informatique pour tous*—computing for all—and various academic experts in technology, such as Marvin Minsky and Nicholas Negroponte, came over to sing in the choir. Jobs gave a talk to the group at the Hotel Bristol and painted a picture of how France could move ahead if it put computers in all of its schools. Paris also brought out the romantic in him. Both Gassée and Negroponte tell tales of him pining over women while there.

Falling

After the burst of excitement that accompanied the release of Macintosh, its sales began to taper off in the second half of 1984. The problem was a fundamental one: It was a dazzling but woefully slow and underpowered computer, and no amount of hoopla could mask that. Its beauty was that its user interface looked like a sunny playroom rather than a somber dark screen with sickly green pulsating letters and surly command lines. But that led to its greatest weakness: A character on a text-based display took less than a byte of code, whereas when the Mac drew a letter, pixel by pixel in any elegant font you wanted, it required twenty or thirty times more memory. The Lisa handled this by shipping with more than 1,000K RAM, whereas the Macintosh made do with 128K.

Another problem was the lack of an internal hard disk drive. Jobs had called Joanna Hoffman a "Xerox bigot" when she fought for such a storage device. He insisted that the Macintosh have just one floppy disk drive. If you wanted to copy data, you could end up with a new form of tennis elbow from having to swap floppy disks in and out of the single drive. In addition, the Macintosh lacked a fan, another example of Jobs's dogmatic stubbornness. Fans, he felt, detracted from the calm of a computer. This caused many component failures and earned the Macintosh the nickname "the beige toaster," which did not enhance its popularity. It was so seductive that it had sold well enough for the first few months, but when people became more aware of its limitations, sales fell. As Hoffman later lamented, "The reality distortion field can serve as a spur, but then reality itself hits."

At the end of 1984, with Lisa sales virtually nonexistent and Macintosh sales falling below ten thousand a month, Jobs made a shoddy, and atypical, decision out of desperation. He decided to take the inventory of unsold Lisas, graft on a Macintosh-emulation program, and sell them as a new product, the "Macintosh XL." Since the Lisa had been discontinued and would not be restarted, it was an unusual instance of Jobs producing something that he did not believe in. "I was furious because the Mac XL wasn't real," said Hoffman. "It was just to blow the excess Lisas out the door. It sold well, and then we had to discontinue the horrible hoax, so I resigned."

The dark mood was evident in the ad that was developed in January 1985, which was supposed to reprise the anti-IBM sentiment of the resonant "1984" ad. Unfortunately there was a fundamental difference: The first ad had ended on a heroic, optimistic note, but the storyboards presented by Lee Clow and Jay Chiat for the new ad, titled "Lemmings," showed dark-suited, blindfolded corporate managers marching off a cliff to their death. From the beginning both Jobs and Sculley were uneasy. It didn't seem as if it would convey a positive or glorious image of Apple, but instead would merely insult every manager who had bought an IBM.

Jobs and Sculley asked for other ideas, but the agency folks pushed back. "You guys didn't want to run '1984' last year," one of them said. According to Sculley, Lee Clow added, "I will put my whole reputation, everything, on this commercial." When the filmed version, done by Ridley Scott's brother Tony, came in, the concept looked even worse. The mindless managers marching off the cliff were singing a funeral-paced version of the *Snow White* song "Heigh-ho, Heigh-ho," and the dreary filmmaking made it even more depressing than the storyboards portended. "I can't believe you're going to insult businesspeople across America by running that," Debi Coleman yelled at Jobs when she saw the ad. At the marketing meetings, she stood up to make her point about how much she hated it. "I literally put a resignation letter on his desk. I wrote it on my Mac. I thought it was an affront to corporate managers. We were just beginning to get a toehold with desktop publishing."

Nevertheless Jobs and Sculley bent to the agency's entreaties and ran the commercial during the Super Bowl. They went to the game together at Stanford Stadium with Sculley's wife, Leezy (who couldn't stand Jobs), and Jobs's new girlfriend, Tina Redse. When the commercial was shown near the end of the fourth quarter of a dreary game, the fans watched on the overhead screen and had little reaction. Across the country, most of the response was negative. "It insulted the very people Apple was trying to reach," the president of a market research firm told *Fortune*. Apple's marketing manager suggested afterward that the company might want to buy an ad in the *Wall Street Journal* apologizing. Jay Chiat threatened that if Apple did that his agency would buy the facing page and apologize for the apology.

Jobs's discomfort, with both the ad and the situation at Apple in general, was on display when he traveled to New York in January to do another round of one-on-one press interviews. Andy Cunningham, from Regis McKenna's firm, was in charge of hand-holding and logistics at the Carlyle. When Jobs arrived, he told her that his suite needed to be completely redone, even though it was 10 p.m. and the meetings were to begin the next day. The piano was not in the right place; the strawberries were the wrong type. But his biggest objection was that he didn't like the flowers. He wanted calla lilies. "We got into a big fight on what a calla lily is," Cunningham recalled. "I know what they are, because I had them at my wedding, but he insisted on having a different type of lily and said I was 'stupid' because I didn't know what a real calla lily was." So Cunningham went out and, this being New York, was able to find a place open at midnight where she could get the lilies he wanted. By the time they got the room rearranged, Jobs started objecting to what she was wearing. "That suit's disgusting," he told her. Cunningham knew that at times he just simmered with undirected anger, so she tried to calm him down. "Look, I know you're angry, and I know how you feel," she said.

"You have no fucking idea how I feel," he shot back, "no fucking idea what it's like to be me."

Thirty Years Old

Turning thirty is a milestone for most people, especially those of the generation that proclaimed it would never trust anyone over that age. To celebrate his own thirtieth, in February 1985, Jobs threw a lavishly formal but also playful—black tie and tennis shoes—party for one thousand in the ballroom of the St. Francis Hotel in San Francisco. The invitation read, "There's an old Hindu saying that goes, 'In the first 30 years of your life, you make your habits. For the last 30 years of your life, your habits make you.' Come help me celebrate mine."

One table featured software moguls, including Bill Gates and

Mitch Kapor. Another had old friends such as Elizabeth Holmes, who brought as her date a woman dressed in a tuxedo. Andy Hertzfeld and Burrell Smith had rented tuxes and wore floppy tennis shoes, which made it all the more memorable when they danced to the Strauss waltzes played by the San Francisco Symphony Orchestra.

Ella Fitzgerald provided the entertainment, as Bob Dylan had declined. She sang mainly from her standard repertoire, though occasionally tailoring a song like "The Girl from Ipanema" to be about the boy from Cupertino. When she asked for some requests, Jobs called out a few. She concluded with a slow rendition of "Happy Birthday."

Sculley came to the stage to propose a toast to "technology's foremost visionary." Wozniak also came up and presented Jobs with a framed copy of the Zaltair hoax from the 1977 West Coast Computer Faire, where the Apple II had been introduced. The venture capitalist Don Valentine marveled at the change in the decade since that time. "He went from being a Ho Chi Minh look-alike, who said never trust anyone over thirty, to a person who gives himself a fabulous thirtieth birthday with Ella Fitzgerald," he said.

Many people had picked out special gifts for a person who was not easy to shop for. Debi Coleman, for example, found a first edition of F. Scott Fitzgerald's *The Last Tycoon*. But Jobs, in an act that was odd yet not out of character, left all of the gifts in a hotel room. Wozniak and some of the Apple veterans, who did not take to the goat cheese and salmon mousse that was served, met after the party and went out to eat at a Denny's.

"It's rare that you see an artist in his 30s or 40s able to really contribute something amazing," Jobs said wistfully to the writer David Sheff, who published a long and intimate interview in *Playboy* the month he turned thirty. "Of course, there are some people who are innately curious, forever little kids in their awe of life, but they're rare." The interview touched on many subjects, but Jobs's most poignant ruminations were about growing old and facing the future:

> Your thoughts construct patterns like scaffolding in your mind. You are really etching chemical patterns. In most cases, people get stuck in those patterns, just like grooves in a record, and they never get out of them.

> I'll always stay connected with Apple. I hope that throughout my life I'll sort of have the thread of my life and the thread of Apple weave in and out of each other, like a tapestry. There may be a few years when I'm not there, but I'll always come back. . . .
>
> If you want to live your life in a creative way, as an artist, you have to not look back too much. You have to be willing to take whatever you've done and whoever you were and throw them away.
>
> The more the outside world tries to reinforce an image of you, the harder it is to continue to be an artist, which is why a lot of times, artists have to say, "Bye. I have to go. I'm going crazy and I'm getting out of here." And they go and hibernate somewhere. Maybe later they re-emerge a little differently.

With each of those statements, Jobs seemed to have a premonition that his life would soon be changing. Perhaps the thread of his life would indeed weave in and out of the thread of Apple's. Perhaps it was time to throw away some of what he had been. Perhaps it was time to say "Bye, I have to go," and then reemerge later, thinking differently.

Exodus

Andy Hertzfeld had taken a leave of absence after the Macintosh came out in 1984. He needed to recharge his batteries and get away from his supervisor, Bob Belleville, whom he didn't like. One day he learned that Jobs had given out bonuses of up to $50,000 to engineers on the Macintosh team. So he went to Jobs to ask for one. Jobs responded that Belleville had decided not to give the bonuses to people who were on leave. Hertzfeld later heard that the decision had actually been made by Jobs, so he confronted him. At first Jobs equivocated, then he said, "Well, let's assume what you are saying is true. How does that change things?" Hertzfeld said that if Jobs was withholding the bonus as a reason for him to come back, then he wouldn't come back as a matter of principle. Jobs relented, but it left Hertzfeld with a bad taste.

When his leave was coming to an end, Hertzfeld made an appointment to have dinner with Jobs, and they walked from his office to an Italian restaurant a few blocks away. "I really want to return," he told Jobs. "But things seem really messed up right now." Jobs was vaguely annoyed and distracted, but Hertzfeld plunged ahead. "The software team is completely demoralized and has hardly done a thing for months, and Burrell is so frustrated that he won't last to the end of the year."

At that point Jobs cut him off. "You don't know what you're talking about!" he said. "The Macintosh team is doing great, and I'm having the best time of my life right now. You're just completely out of touch." His stare was withering, but he also tried to look amused at Hertzfeld's assessment.

"If you really believe that, I don't think there's any way that I can come back," Hertzfeld replied glumly. "The Mac team that I want to come back to doesn't even exist anymore."

"The Mac team had to grow up, and so do you," Jobs replied. "I want you to come back, but if you don't want to, that's up to you. You don't matter as much as you think you do, anyway."

Hertzfeld didn't come back.

By early 1985 Burrell Smith was also ready to leave. He had worried that it would be hard to quit if Jobs tried to talk him out of it; the reality distortion field was usually too strong for him to resist. So he plotted with Hertzfeld how he could break free of it. "I've got it!" he told Hertzfeld one day. "I know the perfect way to quit that will nullify the reality distortion field. I'll just walk into Steve's office, pull down my pants, and urinate on his desk. What could he say to that? It's guaranteed to work." The betting on the Mac team was that even brave Burrell Smith would not have the gumption to do that. When he finally decided he had to make his break, around the time of Jobs's birthday bash, he made an appointment to see Jobs. He was surprised to find Jobs smiling broadly when he walked in. "Are you gonna do it? Are you really gonna do it?" Jobs asked. He had heard about the plan.

Smith looked at him. "Do I have to? I'll do it if I have to." Jobs gave him a look, and Smith decided it wasn't necessary. So he resigned less dramatically and walked out on good terms.

He was quickly followed by another of the great Macintosh engineers, Bruce Horn. When Horn went in to say good-bye, Jobs told him, "Everything that's wrong with the Mac is your fault."

Horn responded, "Well, actually, Steve, a lot of things that are right with the Mac are my fault, and I had to fight like crazy to get those things in."

"You're right," admitted Jobs. "I'll give you 15,000 shares to stay." When Horn declined the offer, Jobs showed his warmer side. "Well, give me a hug," he said. And so they hugged.

But the biggest news that month was the departure from Apple, yet again, of its cofounder, Steve Wozniak. Wozniak was then quietly working as a midlevel engineer in the Apple II division, serving as a humble mascot of the roots of the company and staying as far away from management and corporate politics as he could. He felt, with justification, that Jobs was not appreciative of the Apple II, which remained the cash cow of the company and accounted for 70% of its sales at Christmas 1984. "People in the Apple II group were being treated as very unimportant by the rest of the company," he later said. "This was despite the fact that the Apple II was by far the largest-selling product in our company for ages, and would be for years to come." He even roused himself to do something out of character; he picked up the phone one day and called Sculley, berating him for lavishing so much attention on Jobs and the Macintosh division.

Frustrated, Wozniak decided to leave quietly to start a new company that would make a universal remote control device he had invented. It would control your television, stereo, and other electronic devices with a simple set of buttons that you could easily program. He informed the head of engineering at the Apple II division, but he didn't feel he was important enough to go out of channels and tell Jobs or Markkula. So Jobs first heard about it when the news leaked in the *Wall Street Journal*. In his earnest way, Wozniak had openly answered the reporter's questions when he called. Yes, he said, he felt that Apple had been giving short shrift to the Apple II division. "Apple's direction has been horrendously wrong for five years," he said.

Less than two weeks later Wozniak and Jobs traveled together to the White House, where Ronald Reagan presented them with the first National Medal of Technology. The president quoted what President Rutherford Hayes had said when first shown a telephone—"An amazing invention, but who would ever want to use one?"—and then quipped, "I thought at the time that he might be mistaken." Because of the awkward situation surrounding Wozniak's departure, Apple did not throw a celebratory dinner. So Jobs and Wozniak went for a walk afterward and ate at a sandwich shop. They chatted amiably, Wozniak recalled, and avoided any discussion of their disagreements.

Wozniak wanted to make the parting amicable. It was his style. So he agreed to stay on as a part-time Apple employee at a $20,000 salary and represent the company at events and trade shows. That could have been a graceful way to drift apart. But Jobs could not leave well enough alone. One Saturday, a few weeks after they had visited Washington together, Jobs went to the new Palo Alto studios of Hartmut Esslinger, whose company frogdesign had moved there to handle its design work for Apple. There he happened to see sketches that the firm had made for Wozniak's new remote control device, and he flew into a rage. Apple had a clause in its contract that gave it the right to bar frogdesign from working on other computer-related projects, and Jobs invoked it. "I informed them," he recalled, "that working with Woz wouldn't be acceptable to us."

When the *Wall Street Journal* heard what happened, it got in touch with Wozniak, who, as usual, was open and honest. He said that Jobs was punishing him. "Steve Jobs has a hate for me, probably because of the things I said about Apple," he told the reporter. Jobs's action was remarkably petty, but it was also partly caused by the fact that he understood, in ways that others did not, that the look and style of a product served to brand it. A device that had Wozniak's name on it and used the same design language as Apple's products might be mistaken for something that Apple had produced. "It's not personal," Jobs told the newspaper, explaining that he wanted to make sure that Wozniak's remote wouldn't look like something made by Apple. "We don't want to see our design language used on other products. Woz has to find his own resources. He can't leverage off Apple's resources; we can't treat him specially."

Jobs volunteered to pay for the work that frogdesign had already done for Wozniak, but even so the executives at the firm were taken aback. When Jobs demanded that they send him the drawings done for Wozniak or destroy them, they refused. Jobs had to send them a letter invoking Apple's contractual right. Herbert Pfeifer, the design director of the firm, risked Jobs's wrath by publicly dismissing his claim that the dispute with Wozniak was not personal. "It's a power play," Pfeifer told the *Journal*. "They have personal problems between them."

Hertzfeld was outraged when he heard what Jobs had done. He lived about twelve blocks from Jobs, who sometimes would drop by on his walks. "I got so furious about the Wozniak remote episode that when Steve next came over, I wouldn't let him in the house," Hertzfeld recalled. "He knew he was wrong, but he tried to rationalize, and maybe in his distorted reality he was able to." Wozniak, always a teddy bear even when annoyed, hired another design firm and even agreed to stay on Apple's retainer as a spokesman.

Showdown, Spring 1985

There were many reasons for the rift between Jobs and Sculley in the spring of 1985. Some were merely business disagreements, such as Sculley's attempt to maximize profits by keeping the Macintosh price high when Jobs wanted to make it more affordable. Others were weirdly psychological and stemmed from the torrid and unlikely infatuation they initially had with each other. Sculley had painfully craved Jobs's affection, Jobs had eagerly sought a father figure and mentor, and when the ardor began to cool there was an emotional backwash. But at its core, the growing breach had two fundamental causes, one on each side.

For Jobs, the problem was that Sculley never became a product person. He didn't make the effort, or show the capacity, to understand the fine points of what they were making. On the contrary, he found Jobs's passion for tiny technical tweaks and design details to be obsessive and counterproductive. He had spent his career selling sodas and snacks whose recipes were largely irrelevant to him. He wasn't naturally passionate about products, which was among the most damning sins that Jobs could imagine. "I tried to educate him about the details of engineering," Jobs recalled, "but he had no idea how products are created, and after a while it just turned into arguments. But I learned that my perspective was right. Products are everything." He came to see Sculley as clueless, and his contempt was exacerbated by Sculley's hunger for his affection and delusions that they were very similar.

For Sculley, the problem was that Jobs, when he was no longer in courtship or manipulative mode, was frequently obnoxious, rude, selfish, and nasty to other people. He found Jobs's boorish behavior as despicable as Jobs found Sculley's lack of passion for product details. Sculley was kind, caring, and polite to a fault. At one point they were planning to meet with Xerox's vice chair Bill Glavin, and Sculley begged Jobs to behave. But as soon as they sat down, Jobs told Glavin, "You guys don't have any clue what you're doing," and the meeting broke up. "I'm sorry, but I couldn't help myself," Jobs told Sculley. It was one of many such cases. As Atari's Al Alcorn later observed, "Sculley believed in keeping people happy and worrying about relationships. Steve didn't give a shit about that. But he did care about the product in a way that Sculley never could, and he was able to avoid having too many bozos working at Apple by insulting anyone who wasn't an A player."

The board became increasingly alarmed at the turmoil, and in early 1985 Arthur Rock and some other disgruntled directors delivered a stern lecture to both. They told Sculley that he was supposed to be running the company, and he should start doing so with more authority and less eagerness to be pals with Jobs. They told Jobs that he was supposed to be fixing the mess at the Macintosh division and not telling other divisions how to do their job. Afterward Jobs retreated to his office and typed on his Macintosh, "I will not criticize the rest of the organization, I will not criticize the rest of the organization . . ."

As the Macintosh continued to disappoint—sales in March 1985 were only 10% of the budget forecast—Jobs holed up in his office fuming or wandered the halls berating everyone else for the problems. His mood swings became worse, and so did his abuse of those around him. Middle-level managers began to rise up against him. The marketing chief Mike Murray sought a private meeting with Sculley at an industry conference. As they were going up to Sculley's hotel room, Jobs spotted them and asked to come along. Murray asked him not to. He told Sculley that Jobs was wreaking havoc and had to be removed from managing the Macintosh division. Sculley replied that he was not yet resigned to having a showdown with Jobs. Murray later sent a memo directly to Jobs criticizing the way he treated colleagues and denouncing "management by character assassination."

For a few weeks it seemed as if there might be a solution to the turmoil. Jobs became fascinated by a flat-screen technology developed by a firm near Palo Alto called Woodside Design, run by an eccentric engineer named Steve Kitchen. He also was impressed by another startup that made a touchscreen display that could be controlled by your finger, so you didn't need a mouse. Together these might help fulfill Jobs's vision of creating a "Mac in a book." On a walk with Kitchen, Jobs spotted a building in nearby Menlo Park and declared that they should open a skunkworks facility to work on these ideas. It could be called AppleLabs and Jobs could run it, going back to the joy of having a small team and developing a great new product.

Sculley was thrilled by the possibility. It would solve most of his management issues, moving Jobs back to what he did best and getting rid of his disruptive presence in Cupertino. Sculley also had a candidate to replace Jobs as manager of the Macintosh division: Jean-Louis Gassée, Apple's chief in France, who had suffered through Jobs's visit there. Gassée flew to Cupertino and said he would take the job if he got a guarantee that he would run the division rather than work under Jobs. One of the board members, Phil Schlein of Macy's, tried to convince Jobs that he would be better off thinking up new products and inspiring a passionate little team.

But after some reflection, Jobs decided that was not the path he wanted. He declined to cede control to Gassée, who wisely went back to Paris to avoid the power clash that was becoming inevitable. For the rest of the spring, Jobs vacillated. There were times when he wanted to assert himself as a corporate manager, even writing a memo urging cost savings by eliminating free beverages and first-class air travel, and other times when he agreed with those who were encouraging him to go off and run a new AppleLabs R&D group.

In March Murray let loose with another memo that he marked "Do not circulate" but gave to multiple colleagues. "In my three years at Apple, I've never observed so much confusion, fear, and dysfunction as in the past 90 days," he began. "We are perceived by the rank and file as a boat without a rudder, drifting away into foggy oblivion." Murray had been on both sides of the fence; at times he conspired with Jobs to undermine Sculley, but in this memo he laid the blame on Jobs. "Whether the *cause of* or *because of* the dysfunction, Steve Jobs now controls a seemingly impenetrable power base."

At the end of that month, Sculley finally worked up the nerve to tell Jobs that he should give up running the Macintosh division. He walked over to Jobs's office one evening and brought the human resources manager, Jay Elliot, to make the confrontation more formal. "There is no one who admires your brilliance and vision more than I do," Sculley began. He had uttered such flatteries before, but this time it was clear that there would be a brutal "but" punctuating the thought. And there was. "But this is really not going to work," he declared. The flatteries punctured by "buts" continued. "We have developed a great friendship with each other," he said, "but I have lost confidence in your ability to run the Macintosh division." He also berated Jobs for badmouthing him as a bozo behind his back.

Jobs looked stunned and countered with an odd challenge, that Sculley should help and coach him more: "You've got to spend more time with me." Then he lashed back. He told Sculley he knew nothing about computers, was doing a terrible job running the company, and had disappointed Jobs ever since coming to Apple. Then he began to cry. Sculley sat there biting his fingernails.

"I'm going to bring this up with the board," Sculley declared. "I'm going to recommend that you step down from your operating position of running the Macintosh division. I want you to know that." He urged Jobs not to resist and to agree instead to work on developing new technologies and products.

Jobs jumped from his seat and turned his intense stare on Sculley.

"I don't believe you're going to do that," he said. "If you do that, you're going to destroy the company."

Over the next few weeks Jobs's behavior fluctuated wildly. At one moment he would be talking about going off to run AppleLabs, but in the next moment he would be enlisting support to have Sculley ousted. He would reach out to Sculley, then lash out at him behind his back, sometimes on the same night. One night at 9 he called Apple's general counsel Al Eisenstat to say he was losing confidence in Sculley and needed his help convincing the board to fire him; at 11 the same night, he phoned Sculley to say, "You're terrific, and I just want you to know I love working with you."

At the board meeting on April 11, Sculley officially reported that he wanted to ask Jobs to step down as the head of the Macintosh division and focus instead on new product development. Arthur Rock, the most crusty and independent of the board members, then spoke. He was fed up with both of them: with Sculley for not having the guts to take command over the past year, and with Jobs for "acting like a petulant brat." The board needed to get this dispute behind them, and to do so it should meet privately with each of them.

Sculley left the room so that Jobs could present first. Jobs insisted that Sculley was the problem because he had no understanding of computers. Rock responded by berating Jobs. In his growling voice, he said that Jobs had been behaving foolishly for a year and had no right to be managing a division. Even Jobs's strongest supporter, Phil Schlein, tried to talk him into stepping aside gracefully to run a research lab for the company.

When it was Sculley's turn to meet privately with the board, he gave an ultimatum: "You can back me, and then I take responsibility for running the company, or we can do nothing, and you're going to have to find yourselves a new CEO." If given the authority, he said, he would not move abruptly, but would ease Jobs into the new role over the next few months. The board unanimously sided with Sculley. He was given the authority to remove Jobs whenever he felt the timing was right. As Jobs waited outside the boardroom, knowing full well that he was losing, he saw Del Yocam, a longtime colleague, and hugged him.

After the board made its decision, Sculley tried to be conciliatory. Jobs asked that the transition occur slowly, over the next few months, and Sculley agreed. Later that evening Sculley's executive assistant, Nanette Buckhout, called Jobs to see how he was doing. He was still in his office, shell-shocked. Sculley had already left, and Jobs came over to talk to her. Once again he began oscillating wildly in his attitude toward Sculley. "Why did John do this to me?" he said. "He betrayed me." Then he swung the other way. Perhaps he should take some time away to work on restoring his relationship with Sculley, he said. "John's friendship is more important than anything else, and I think maybe that's what I should do, concentrate on our friendship."

Plotting a Coup

Jobs was not good at taking no for an answer. He went to Sculley's office in early May 1985 and asked for more time to show that he could manage the Macintosh division. He would prove himself as an operations guy, he promised. Sculley didn't back down. Jobs next tried a direct challenge: He asked Sculley to resign. "I think you really lost your stride," Jobs told him. "You were really great the first year, and everything went wonderful. But something happened." Sculley, who generally was even-tempered, lashed back, pointing out that Jobs had been unable to get Macintosh software developed, come up with new models, or win customers. The meeting degenerated into a shouting match about who was the worse manager. After Jobs stalked out, Sculley turned away from the glass wall of his office, where others had been looking in on the meeting, and wept.

Matters began to come to a head on Tuesday, May 14, when the Macintosh team made its quarterly review presentation to Sculley and other Apple corporate leaders. Jobs still had not relinquished control of the division, and he was defiant when he arrived in the corporate boardroom with his team. He and Sculley began by clashing over what the division's mission was. Jobs said it was to sell more Macintosh machines. Sculley said it was to serve the interests of the Apple company as a whole. As usual there was little cooperation among the divisions;

for one thing, the Macintosh team was planning new disk drives that were different from those being developed by the Apple II division. The debate, according to the minutes, took a full hour.

Jobs then described the projects under way: a more powerful Mac, which would take the place of the discontinued Lisa; and software called FileServer, which would allow Macintosh users to share files on a network. Sculley learned for the first time that these projects were going to be late. He gave a cold critique of Murray's marketing record, Belleville's missed engineering deadlines, and Jobs's overall management. Despite all this, Jobs ended the meeting with a plea to Sculley, in front of all the others there, to be given one more chance to prove he could run a division. Sculley refused.

That night Jobs took his Macintosh team out to dinner at Nina's Café in Woodside. Jean-Louis Gassée was in town because Sculley wanted him to prepare to take over the Macintosh division, and Jobs invited him to join them. Belleville proposed a toast "to those of us who really understand what the world according to Steve Jobs is all about." That phrase—"the world according to Steve"—had been used dismissively by others at Apple who belittled the reality warp he created. After the others left, Belleville sat with Jobs in his Mercedes and urged him to organize a battle to the death with Sculley.

Months earlier, Apple had gotten the right to export computers to China, and Jobs had been invited to sign a deal in the Great Hall of the People over the 1985 Memorial Day weekend. He had told Sculley, who decided he wanted to go himself, which was just fine with Jobs. Jobs decided to use Sculley's absence to execute his coup. Throughout the week leading up to Memorial Day, he took a lot of people on walks to share his plans. "I'm going to launch a coup while John is in China," he told Mike Murray.

Seven Days in May

Thursday, May 23: At his regular Thursday meeting with his top lieutenants in the Macintosh division, Jobs told his inner circle about his plan to oust Sculley. He also confided in the corporate human resources director, Jay Elliot, who told him bluntly that the proposed rebellion wouldn't work. Elliot had talked to some board members and urged them to stand up for Jobs, but he discovered that most of the board was with Sculley, as were most members of Apple's senior staff. Yet Jobs barreled ahead. He even revealed his plans to Gassée on a walk around the parking lot, despite the fact that Gassée had come from Paris to take his job. "I made the mistake of telling Gassée," Jobs wryly conceded years later.

That evening Apple's general counsel Al Eisenstat had a small barbecue at his home for Sculley, Gassée, and their wives. When Gassée told Eisenstat what Jobs was plotting, he recommended that Gassée inform Sculley. "Steve was trying to raise a cabal and have a coup to get rid of John," Gassée recalled. "In the den of Al Eisenstat's house, I put my index finger lightly on John's breastbone and said, 'If you leave tomorrow for China, you could be ousted. Steve's plotting to get rid of you.' "

Friday, May 24: Sculley canceled his trip and decided to confront Jobs at the executive staff meeting on Friday morning. Jobs arrived late, and he saw that his usual seat next to Sculley, who sat at the head of the table, was taken. He sat instead at the far end. He was dressed in a well-tailored suit and looked energized. Sculley looked pale. He announced that he was dispensing with the agenda to confront the issue on everyone's mind. "It's come to my attention that you'd like to throw me out of the company," he said, looking directly at Jobs. "I'd like to ask you if that's true."

Jobs was not expecting this. But he was never shy about indulging in brutal honesty. His eyes narrowed, and he fixed Sculley with his unblinking stare. "I think you're bad for Apple, and I think you're the wrong person to run the company," he replied, coldly and slowly. "You really should leave this company. You don't know how to operate and never have." He accused Sculley of not understanding the product development process, and then he added a self-centered swipe: "I wanted you here to help me grow, and you've been ineffective in helping me."

As the rest of the room sat frozen, Sculley finally lost his temper. A childhood stutter that had not afflicted him for twenty years started to return. "I don't trust you, and I won't tolerate a lack of trust," he stammered. When Jobs claimed that he would be better than Sculley at running the company, Sculley took a gamble. He decided to poll the room on that question. "He pulled off this clever maneuver," Jobs recalled, still smarting thirty-five years later. "It was at the executive committee meeting, and he said, 'It's me or Steve, who do you vote for?' He set the whole thing up so that you'd kind of have to be an idiot to vote for me."

Suddenly the frozen onlookers began to squirm. Del Yocam had to go first. He said he loved Jobs, wanted him to continue to play some role in the company, but he worked up the nerve to conclude, with Jobs staring at him, that he "respected" Sculley and would support him to run the company. Eisenstat faced Jobs directly and said much the same thing: He liked Jobs but was supporting Sculley. Regis McKenna, who sat in on senior staff meetings as an outside consultant, was more direct. He looked at Jobs and told him he was not yet ready to run the company, something he had told him before. Others sided with Sculley as well. For Bill Campbell, it was particularly tough. He was fond of Jobs and didn't particularly like Sculley. His voice quavered a bit as he told Jobs he had decided to support Sculley, and he urged the two of them to work it out and find some role for Jobs to play in the company. "You can't let Steve leave this company," he told Sculley.

Jobs looked shattered. "I guess I know where things stand," he said, and bolted out of the room. No one followed.

He went back to his office, gathered his longtime loyalists on the Macintosh staff, and started to cry. He would have to leave Apple, he said. As he started to walk out the door, Debi Coleman restrained him. She and the others urged him to settle down and not do anything hasty. He should take the weekend to regroup. Perhaps there was a way to prevent the company from being torn apart.

Sculley was devastated by his victory. Like a wounded warrior, he retreated to Eisenstat's office and asked the corporate counsel to go for a ride. When they got into Eisenstat's Porsche, Sculley lamented, "I don't know whether I can go through with this." When Eisenstat asked what he meant, Sculley responded, "I think I'm going to resign."

"You can't," Eisenstat protested. "Apple will fall apart."

"I'm going to resign," Sculley declared. "I don't think I'm right for the company."

"I think you're copping out," Eisenstat replied. "You've got to stand up to him." Then he drove Sculley home.

Sculley's wife was surprised to see him back in the middle of the day. "I've failed," he said to her forlornly. She was a volatile woman who had never liked Jobs or appreciated her husband's infatuation with him. So when she heard what had happened, she jumped into her car and sped over to Jobs's office. Informed that he had gone to the Good Earth restaurant, she marched over there and confronted him in the parking lot as he was coming out with loyalists on his Macintosh team.

"Steve, can I talk to you?" she said. His jaw dropped. "Do you have any idea what a privilege it has been even to know someone as fine as John Sculley?" she demanded. He averted his gaze. "Can't you look me in the eyes when I'm talking to you?" she asked. But when Jobs did so—giving her his practiced, unblinking stare—she recoiled. "Never mind, don't look at me," she said. "When I look into most people's eyes, I see a soul. When I look into your eyes, I see a bottomless pit, an empty hole, a dead zone." Then she walked away.

Saturday, May 25: Mike Murray drove to Jobs's house in Woodside to offer some advice: He should consider accepting the role of being a new product visionary, starting AppleLabs, and getting away from headquarters. Jobs seemed willing to consider it. But first he would have to restore peace with Sculley. So he picked up the telephone and surprised Sculley with an olive branch. Could they meet the following afternoon, Jobs asked, and take a walk together in the hills above Stanford University. They had walked there in the past, in happier times, and maybe on such a walk they could work things out.

Jobs did not know that Sculley had told Eisenstat he wanted to quit, but by then it didn't matter. Overnight, he had changed his mind and decided to stay. Despite the blowup the day before, he was still eager for Jobs to like him. So he agreed to meet the next afternoon.

If Jobs was prepping for conciliation, it didn't show in the choice of movie he wanted to see with Murray that night. He picked *Patton*, the epic of the never-surrender general. But he had lent his copy of the tape to his father, who had once ferried troops for the general, so he drove to his childhood home with Murray to retrieve it. His parents weren't there, and he didn't have a key. They walked around the back, checked for unlocked doors or windows, and finally gave up. The video store didn't have a copy of *Patton* in stock, so in the end he had to settle for watching the 1983 film adaptation of Harold Pinter's *Betrayal.*

Sunday, May 26: As planned, Jobs and Sculley met in back of the Stanford campus on Sunday afternoon and walked for several hours amid the rolling hills and horse pastures. Jobs reiterated his plea that he should have an operational role at Apple. This time Sculley stood firm. It won't work, he kept saying. Sculley urged him to take the role of being a product visionary with a lab of his own, but Jobs rejected this as making him into a mere "figurehead." Defying all connection to reality, he countered with the proposal that Sculley give up control of the entire company to him. "Why don't you become chairman and I'll become president and chief executive officer?" he suggested. Sculley was struck by how earnest he seemed.

"Steve, that doesn't make any sense," Sculley replied. Jobs then proposed that they split the duties of running the company, with him handling the product side and Sculley handling marketing and business. But the board had not only emboldened Sculley, it had ordered him to bring Jobs to heel. "One person has got to run the company," he replied. "I've got the support and you don't."

On his way home, Jobs stopped at Mike Markkula's house. He wasn't there, so Jobs left a message asking him to come to dinner the following evening. He would also invite the core of loyalists from his Macintosh team. He hoped that they could persuade Markkula of the folly of siding with Sculley.

Monday, May 27: Memorial Day was sunny and warm. The Macintosh team loyalists—Debi Coleman, Mike Murray, Susan Barnes, and Bob Belleville—got to Jobs's Woodside home an hour before the scheduled dinner so they could plot strategy. Sitting on the patio as the sun set, Coleman told Jobs that he should accept Sculley's offer to be a product visionary and help start up AppleLabs. Of all the inner circle, Coleman was the most willing to be realistic. In the new organization plan, Sculley had tapped her to run the manufacturing division because he knew that her loyalty was to Apple and not just to Jobs. Some of the others were more hawkish. They wanted to urge Markkula to support a reorganization plan that put Jobs in charge.

When Markkula showed up, he agreed to listen with one proviso: Jobs had to keep quiet. "I seriously wanted to hear the thoughts of the Macintosh team, not watch Jobs enlist them in a rebellion," he recalled. As it turned cooler, they went inside the sparsely furnished mansion and sat by a fireplace. Instead of letting it turn into a gripe session, Markkula made them focus on very specific management issues, such as what had caused the problem in producing the FileServer software and why the Macintosh distribution system had not responded well to the change in demand. When they were finished, Markkula bluntly declined to back Jobs. "I said I wouldn't support his plan, and that was the end of that," Markkula recalled. "Sculley was the boss. They were mad and emotional and putting together a revolt, but that's not how you do things."

Tuesday, May 28: His ire stoked by hearing from Markkula that Jobs had spent the previous evening trying to subvert him, Sculley walked over to Jobs's office on Tuesday morning. He had talked to the board, he said, and he had its support. He wanted Jobs out. Then he drove to Markkula's house, where he gave a presentation of his reorganization plans. Markkula asked detailed questions, and at the end he gave Sculley his blessing. When he got back to his office, Sculley called the other members of the board, just to make sure he still had their backing. He did.

At that point he called Jobs to make sure he understood. The board had given final approval of his reorganization plan, which would proceed that week. Gassée would take over control of Jobs's beloved Macintosh as well as other products, and there was no other division for Jobs to run. Sculley was still somewhat conciliatory. He told Jobs that he could stay on with the title of board chairman and be a product visionary with no operational duties. But by this point, even the idea of starting a skunkworks such as AppleLabs was no longer on the table.

It finally sank in. Jobs realized there was no appeal, no way to warp the reality. He broke down in tears and started making phone calls—to Bill Campbell, Jay Elliot, Mike Murray, and others. Murray's wife, Joyce, was on an overseas call when Jobs phoned, and the operator broke in saying it was an emergency. It better be important, she told the operator. "It is," she heard Jobs say. When her husband got on the phone, Jobs was crying. "It's over," he said. Then he hung up.

Murray was worried that Jobs was so despondent he might do something rash, so he called back. There was no answer, so he drove to Woodside. No one came to the door when he knocked, so he went around back and climbed up some exterior steps and looked in the bedroom. Jobs was lying there on a mattress in his unfurnished room. He let Murray in and they talked until almost dawn.

Wednesday, May 29: Jobs finally got hold of a tape of *Patton*, which he watched Wednesday evening, but Murray prevented him from getting stoked up for another battle. Instead he urged Jobs to come in on Friday for Sculley's announcement of the reorganization plan. There was no option left other than to play the good soldier rather than the renegade commander.

Like a Rolling Stone

Jobs slipped quietly into the back row of the auditorium to listen to Sculley explain to the troops the new order of battle. There were a lot of sideways glances, but few people acknowledged him and none came over to provide public displays of affection. He stared without blinking at Sculley, who would remember "Steve's look of contempt" years later. "It's unyielding," Sculley recalled, "like an X-ray boring inside your bones, down to where you're soft and destructibly mortal." For a moment, standing onstage while pretending not to notice Jobs, Sculley thought back to a friendly trip they had taken a year earlier to Cambridge, Massachusetts, to visit Jobs's hero, Edwin Land. He had been dethroned from the company he created, Polaroid, and Jobs had said to Sculley in disgust, "All he did was blow a lousy few million and they took his company away from him." Now, Sculley reflected, he was taking Jobs's company away from him.

As Sculley went over the organizational chart, he introduced Gassée as the new head of a combined Macintosh and Apple II product group. On the chart was a small box labeled "chairman" with no lines connecting to it, not to Sculley or to anyone else. Sculley briefly noted that in that role, Jobs would play the part of "global visionary." But he didn't acknowledge Jobs's presence. There was a smattering of awkward applause.

Jobs stayed home for the next few days, blinds drawn, his answering machine on, seeing only his girlfriend, Tina Redse. For hours on end he sat there playing his Bob Dylan tapes, especially "The Times They Are a-Changin.' " He had recited the second verse the day he unveiled the Macintosh to the Apple shareholders sixteen months earlier. That verse ended nicely: "For the loser now / Will be later to win. . . ."

A rescue squad from his former Macintosh posse arrived to dispel the gloom on Sunday night, led by Andy Hertzfeld and Bill Atkinson. Jobs took a while to answer their knock, and then he led them to a room next to the kitchen that was one of the few places with any furniture. With Redse's help, he served some vegetarian food he had ordered. "So what really happened?" Hertzfeld asked. "Is it really as bad as it looks?"

"No, it's worse." Jobs grimaced. "It's much worse than you can imagine." He blamed Sculley for betraying him, and said that Apple would not be able to manage without him. His role as chairman, he complained, was completely ceremonial. He was being ejected from his Bandley 3 office to a small and almost empty building he nicknamed "Siberia." Hertzfeld turned the topic to happier days, and they began to reminisce about the past.

Earlier that week, Dylan had released a new album, *Empire Burlesque*, and Hertzfeld brought a copy that they played on Jobs's high-tech turntable. The most notable track, "When the Night Comes

Falling from the Sky," with its apocalyptic message, seemed appropriate for the evening, but Jobs didn't like it. It sounded almost disco, and he gloomily argued that Dylan had been going downhill since *Blood on the Tracks*. So Hertzfeld moved the needle to the last song on the album, "Dark Eyes," which was a simple acoustic number featuring Dylan alone on guitar and harmonica. It was slow and mournful and, Hertzfeld hoped, would remind Jobs of the earlier Dylan tracks he so loved. But Jobs didn't like that song either and had no desire to hear the rest of the album.

Jobs's overwrought reaction was understandable. Sculley had once been a father figure to him. So had Mike Markkula. So had Arthur Rock. That week all three had abandoned him. "It gets back to the deep feeling of being rejected at an early age," his friend and lawyer George Riley later said. "It's a deep part of his own mythology, and it defines to himself who he is." Jobs recalled years later, "I felt like I'd been punched, the air knocked out of me and I couldn't breathe."

Losing the support of Arthur Rock was especially painful. "Arthur had been like a father to me," Jobs said. "He took me under his wing." Rock had taught him about opera, and he and his wife, Toni, had been his hosts in San Francisco and Aspen. "I remember driving into San Francisco one time, and I said to him, 'God, that Bank of America building is ugly,' and he said, 'No, it's the best,' and he proceeded to lecture me, and he was right of course." Years later Jobs's eyes welled with tears as he recounted the story: "He chose Sculley over me. That really threw me for a loop. I never thought he would abandon me."

Making matters worse was that his beloved company was now in the hands of a man he considered a bozo. "The board felt that I couldn't run a company, and that was their decision to make," he said. "But they made one mistake. They should have separated the decision of what to do with me and what to do with Sculley. They should have fired Sculley, even if they didn't think I was ready to run Apple." Even as his personal gloom slowly lifted, his anger at Sculley, his feeling of betrayal, deepened.

The situation worsened when Sculley told a group of analysts that he considered Jobs irrelevant to the company, despite his title as chairman. "From an operations standpoint, there is no role either today or in the future for Steve Jobs," he said. "I don't know what he'll do." The blunt comment shocked the group, and a gasp went through the auditorium.

Perhaps getting away to Europe would help, Jobs thought. So in June he went to Paris, where he spoke at an Apple event and went to a dinner honoring Vice President George H. W. Bush. From there he went to Italy, where he drove the hills of Tuscany with Redse and bought a bike so he could spend time riding by himself. In Florence he soaked in the architecture of the city and the texture of the building materials. Particularly memorable were the paving stones, which came from Il Casone quarry near the Tuscan town of Firenzuola. They were a calming bluish gray. Twenty years later he would decide that the floors of most major Apple stores would be made of this sandstone.

The Apple II was just going on sale in Russia, so Jobs headed off to Moscow, where he met up with Al Eisenstat. Because there was a problem getting Washington's approval for some of the required export licenses, they visited the commercial attaché at the American embassy in Moscow, Mike Merwin. He warned them that there were strict laws against sharing technology with the Soviets. Jobs was annoyed. At the Paris trade show, Vice President Bush had encouraged him to get computers into Russia in order to "foment revolution from below." Over dinner at a Georgian restaurant that specialized in shish kebab, Jobs continued his rant. "How could you suggest this violates American law when it so obviously benefits our interests?" he asked Merwin. "By putting Macs in the hands of Russians, they could print all their newspapers."

Jobs also showed his feisty side in Moscow by insisting on talking about Trotsky, the charismatic revolutionary who fell out of favor and was ordered assassinated by Stalin. At one point the KGB agent assigned to him suggested he tone down his fervor. "You don't want to talk about Trotsky," he said. "Our historians have studied the situation, and we don't believe he's a great man anymore." That didn't help. When they got to the state university in Moscow to speak to computer students, Jobs began his speech by praising Trotsky. He was a revolutionary Jobs could identify with.

Jobs and Eisenstat attended the July Fourth party at the American embassy, and in his thank-you letter to Ambassador Arthur Hartman, Eisenstat noted that Jobs planned to pursue Apple's ventures in Russia more vigorously in the coming year. "We are tentatively planning on returning to Moscow in September." For a moment it looked as if Sculley's hope that Jobs would turn into a "global visionary" for the company might come to pass. But it was not to be. Something much different was in store for September.

CHAPTER EIGHTEEN

NeXT

Prometheus Unbound

The Pirates Abandon Ship

Upon his return from Europe in August 1985, while he was casting about for what to do next, Jobs called the Stanford biochemist Paul Berg to discuss the advances that were being made in gene splicing and recombinant DNA. Berg described how difficult it was to do experiments in a biology lab, where it could take weeks to nurture an experiment and get a result. "Why don't you simulate them on a computer?" Jobs asked. Berg replied that computers with such capacities were too expensive for university labs. "Suddenly, he was excited about the possibilities," Berg recalled. "He had it in his mind to start a new company.

He was young and rich, and had to find something to do with the rest of his life."

Jobs had already been canvassing academics to ask what their workstation needs were. It was something he had been interested in since 1983, when he had visited the computer science department at Brown to show off the Macintosh, only to be told that it would take a far more powerful machine to do anything useful in a university lab. The dream of academic researchers was to have a workstation that was both powerful and personal. As head of the Macintosh division, Jobs had launched a project to build such a machine, which was dubbed the Big Mac. It would have a UNIX operating system but with the friendly Macintosh interface. But after Jobs was ousted from the Macintosh division, his replacement, Jean-Louis Gassée, canceled the Big Mac.

When that happened, Jobs got a distressed call from Rich Page, who had been engineering the Big Mac's chip set. It was the latest in a series of conversations that Jobs was having with disgruntled Apple employees urging him to start a new company and rescue them. Plans to do so began to jell over Labor Day weekend, when Jobs spoke to Bud Tribble, the original Macintosh software chief, and floated the idea of starting a company to build a powerful but personal workstation. He also enlisted two other Macintosh division employees who had been talking about leaving, the engineer George Crow and the controller Susan Barnes.

That left one key vacancy on the team: a person who could market the new product to universities. The obvious candidate was Dan'l Lewin, who at Apple had organized a consortium of universities to buy Macintosh computers in bulk. Besides missing two letters in his first name, Lewin had the chiseled good looks of Clark Kent and a Princetonian's polish. He and Jobs shared a bond: Lewin had written a Princeton thesis on Bob Dylan and charismatic leadership, and Jobs knew something about both of those topics.

Lewin's university consortium had been a godsend to the Macintosh group, but he had become frustrated after Jobs left and Bill Campbell had reorganized marketing in a way that reduced the role of direct sales to universities. He had been meaning to call Jobs when, that

Labor Day weekend, Jobs called first. He drove to Jobs's unfurnished mansion, and they walked the grounds while discussing the possibility of creating a new company. Lewin was excited, but not ready to commit. He was going to Austin with Campbell the following week, and he wanted to wait until then to decide. Upon his return, he gave his answer: He was in. The news came just in time for the September 13 Apple board meeting.

Although Jobs was still nominally the board's chairman, he had not been to any meetings since he lost power. He called Sculley, said he was going to attend, and asked that an item be added to the end of the agenda for a "chairman's report." He didn't say what it was about, and Sculley assumed it would be a criticism of the latest reorganization. Instead, when his turn came to speak, Jobs described to the board his plans to start a new company. "I've been thinking a lot, and it's time for me to get on with my life," he began. "It's obvious that I've got to do something. I'm thirty years old." Then he referred to some prepared notes to describe his plan to create a computer for the higher education market. The new company would not be competitive with Apple, he promised, and he would take with him only a handful of non-key personnel. He offered to resign as chairman of Apple, but he expressed hope that they could work together. Perhaps Apple would want to buy the distribution rights to his product, he suggested, or license Macintosh software to it.

Mike Markkula rankled at the possibility that Jobs would hire anyone from Apple. "Why would you take anyone at all?" he asked.

"Don't get upset," Jobs assured him and the rest of the board. "These are very low-level people that you won't miss, and they will be leaving anyway."

The board initially seemed disposed to wish Jobs well in his venture. After a private discussion, the directors even proposed that Apple take a 10% stake in the new company and that Jobs remain on the board.

That night Jobs and his five renegades met again at his house for dinner. He was in favor of taking the Apple investment, but the others convinced him it was unwise. They also agreed that it would be best if they resigned all at once, right away. Then they could make a clean break.

So Jobs wrote a formal letter telling Sculley the names of the five who would be leaving, signed it in his spidery lowercase signature, and drove to Apple the next morning to hand it to him before his 7:30 staff meeting.

"Steve, these are not low-level people," Sculley said.

"Well, these people were going to resign anyway," Jobs replied. "They are going to be handing in their resignations by nine this morning."

From Jobs's perspective, he had been honest. The five were not division managers or members of Sculley's top team. They had all felt diminished, in fact, by the company's new organization. But from Sculley's perspective, these were important players; Page was an Apple Fellow, and Lewin was a key to the higher education market. In addition, they knew about the plans for Big Mac; even though it had been shelved, this was still proprietary information. Nevertheless Sculley was sanguine. Instead of pushing the point, he asked Jobs to remain on the board. Jobs replied that he would think about it.

But when Sculley walked into his 7:30 staff meeting and told his top lieutenants who was leaving, there was an uproar. Most of them felt that Jobs had breached his duties as chairman and displayed stunning disloyalty to the company. "We should expose him for the fraud that he is so that people here stop regarding him as a messiah," Campbell shouted, according to Sculley.

Campbell admitted that, although he later became a great Jobs defender and supportive board member, he was ballistic that morning. "I was fucking furious, especially about him taking Dan'l Lewin," he recalled. "Dan'l had built the relationships with the universities. He was always muttering about how hard it was to work with Steve, and then he left." Campbell was so angry that he walked out of the meeting to call Lewin at home. When his wife said he was in the shower, Campbell said, "I'll wait." A few minutes later, when she said he was still in the shower, Campbell again said, "I'll wait." When Lewin finally came on the phone, Campbell asked him if it was true. Lewin acknowledged it was. Campbell hung up without saying another word.

After hearing the fury of his senior staff, Sculley surveyed the members of the board. They likewise felt that Jobs had misled them with his pledge that he would not raid important employees. Arthur Rock was especially angry. Even though he had sided with Sculley during the Memorial Day showdown, he had been able to repair his paternal relationship with Jobs. Just the week before, he had invited Jobs to bring his girlfriend up to San Francisco so that he and his wife could meet her, and the four had a nice dinner in Rock's Pacific Heights home. Jobs had not mentioned the new company he was forming, so Rock felt betrayed when he heard about it from Sculley. "He came to the board and lied to us," Rock growled later. "He told us he was thinking of forming a company when in fact he had already formed it. He said he was going to take a few middle-level people. It turned out to be five senior people." Markkula, in his subdued way, was also offended. "He took some top executives he had secretly lined up before he left. That's not the way you do things. It was ungentlemanly."

Over the weekend both the board and the executive staff convinced Sculley that Apple would have to declare war on its cofounder. Markkula issued a formal statement accusing Jobs of acting "in direct contradiction to his statements that he wouldn't recruit any key Apple personnel for his company." He added ominously, "We are evaluating what possible actions should be taken." Campbell was quoted in the *Wall Street Journal* as saying he "was stunned and shocked" by Jobs's behavior.

Jobs had left his meeting with Sculley thinking that things might proceed smoothly, so he had kept quiet. But after reading the newspapers, he felt that he had to respond. He phoned a few favored reporters and invited them to his home for private briefings the next day. Then he called Andy Cunningham, who had handled his publicity at Regis McKenna. "I went over to his unfurnished mansiony place in Woodside," she recalled, "and I found him huddled in the kitchen with his five colleagues and a few reporters hanging outside on the lawn." Jobs told her that he was going to do a full-fledged press conference and started spewing some of the derogatory things he was going to say. Cunningham was appalled. "This is going to reflect badly on you," she told him. Finally he backed down. He decided that he would give the reporters a copy of the resignation letter and limit any on-the-record comments to a few bland statements.

Jobs had considered just mailing in his letter of resignation, but Susan Barnes convinced him that this would be too contemptuous. Instead he drove it to Markkula's house, where he also found Al Eisenstat. There was a tense conversation for about fifteen minutes; then Barnes, who had been waiting outside, came to the door to retrieve him before he said anything he would regret. He left behind the letter, which he had composed on a Macintosh and printed on the new LaserWriter:

> *September 17, 1985*
>
> *Dear Mike:*
>
> *This morning's papers carried suggestions that Apple is considering removing me as Chairman. I don't know the source of these reports but they are both misleading to the public and unfair to me.*
>
> *You will recall that at last Thursday's Board meeting I stated I had decided to start a new venture and I tendered my resignation as Chairman.*
>
> *The Board declined to accept my resignation and asked me to defer it for a week. I agreed to do so in light of the encouragement the Board offered with regard to the proposed new venture and the indications that Apple would invest in it. On Friday, after I told John Sculley who would be joining me, he confirmed Apple's willingness to discuss areas of possible collaboration between Apple and my new venture.*
>
> *Subsequently the Company appears to be adopting a hostile posture toward me and the new venture. Accordingly, I must insist upon the immediate acceptance of my resignation. . . .*
>
> *As you know, the company's recent reorganization left me with no work to do and no access even to regular management reports. I am but 30 and want still to contribute and achieve.*
>
> *After what we have accomplished together, I would wish our parting to be both amicable and dignified.*
>
> *Yours sincerely, steven p. jobs*

When a guy from the facilities team went to Jobs's office to pack up his belongings, he saw a picture frame on the floor. It contained a photograph of Jobs and Sculley in warm conversation, with an inscription from seven months earlier: "Here's to Great Ideas, Great Experiences, and a Great Friendship! John." The glass frame was shattered. Jobs had hurled it across the room before leaving. From that day, he never spoke to Sculley again.

Apple's stock went up a full point, or almost 7%, when Jobs's resignation was announced. "East Coast stockholders always worried about California flakes running the company," explained the editor of a tech stock newsletter. "Now with both Wozniak and Jobs out, those shareholders are relieved." But Nolan Bushnell, the Atari founder who had been an amused mentor ten years earlier, told *Time* that Jobs would be badly missed. "Where is Apple's inspiration going to come from? Is Apple going to have all the romance of a new brand of Pepsi?"

After a few days of failed efforts to reach a settlement with Jobs, Sculley and the Apple board decided to sue him "for breaches of fiduciary obligations." The suit spelled out his alleged transgressions:

> Notwithstanding his fiduciary obligations to Apple, Jobs, while serving as the Chairman of Apple's Board of Directors and an officer of Apple and pretending loyalty to the interests of Apple . . .
>
> (a) secretly planned the formation of an enterprise to compete with Apple;
>
> (b) secretly schemed that his competing enterprise would wrongfully take advantage of and utilize Apple's plan to design, develop and market the Next Generation Product . . .
>
> (c) secretly lured away key employees of Apple.

At the time, Jobs owned 6.5 million shares of Apple stock, 11% of the company, worth more than $100 million. He began to sell his shares, and within five months had dumped them all, retaining only one share so he could attend shareholder meetings if he wanted. He was furious, and that was reflected in his passion to start what was, no matter how he spun it, a rival company. "He was angry at Apple," said Joanna Hoffman, who briefly went to work for the new company. "Aiming at the educational market, where Apple was strong, was simply Steve being vengeful. He was doing it for revenge."

Jobs, of course, didn't see it that way. "I haven't got any sort of odd chip on my shoulder," he told *Newsweek.* Once again he invited his favorite reporters over to his Woodside home, and this time he did not have Andy Cunningham there urging him to be circumspect. He dismissed the allegation that he had improperly lured the five colleagues from Apple. "These people all called me," he told the gaggle of journalists who were milling around in his unfurnished living room. "They were thinking of leaving the company. Apple has a way of neglecting people."

He decided to cooperate with a *Newsweek* cover in order to get his version of the story out, and the interview he gave was revealing. "What I'm best at doing is finding a group of talented people and making things with them," he told the magazine. He said that he would always harbor affection for Apple. "I'll always remember Apple like any man remembers the first woman he's fallen in love with." But he was also willing to fight with its management if need be. "When someone calls you a thief in public, you have to respond." Apple's threat to sue him was outrageous. It was also sad. It showed that Apple was no longer a confident, rebellious company. "It's hard to think that a $2 billion company with 4,300 employees couldn't compete with six people in blue jeans."

To try to counter Jobs's spin, Sculley called Wozniak and urged him to speak out. "Steve can be an insulting and hurtful guy," he told *Time* that week. He revealed that Jobs had asked him to join his new firm—it would have been a sly way to land another blow against Apple's current management—but he wanted no part of such games and had not returned Jobs's phone call. To the *San Francisco Chronicle*, he recounted how Jobs had blocked frogdesign from working on his remote control under the pretense that it might compete with Apple products. "I look forward to a great product and I wish him success, but his integrity I cannot trust," Wozniak said.

To Be on Your Own

"The best thing ever to happen to Steve is when we fired him, told him to get lost," Arthur Rock later said. The theory, shared by many, is that the tough love made him wiser and more mature. But it's not that simple. At the company he founded after being ousted from Apple, Jobs was able to indulge all of his instincts, both good and bad. He was unbound. The result was a series of spectacular products that were dazzling market flops. *This* was the true learning experience. What prepared him for the great success he would have in Act III was not his ouster from his Act I at Apple but his brilliant failures in Act II.

The first instinct that he indulged was his passion for design. The name he chose for his new company was rather straightforward: Next. In order to make it more distinctive, he decided he needed a world-class logo. So he courted the dean of corporate logos, Paul Rand. At seventy-one, the Brooklyn-born graphic designer had already created some of the best-known logos in business, including those of *Esquire*, IBM, Westinghouse, ABC, and UPS. He was under contract to IBM, and his supervisors there said that it would obviously be a conflict for him to create a logo for another computer company. So Jobs picked up the phone and called IBM's CEO, John Akers. Akers was out of town, but Jobs was so persistent that he was finally put through to Vice Chairman Paul Rizzo. After two days, Rizzo concluded that it was futile to resist Jobs, and he gave permission for Rand to do the work.

Rand flew out to Palo Alto and spent time walking with Jobs and listening to his vision. The computer would be a cube, Jobs pronounced. He loved that shape. It was perfect and simple. So Rand decided that the logo should be a cube as well, one that was tilted at a 28° angle. When Jobs asked for a number of options to consider, Rand declared that he did not create different *options* for clients. "I will solve your problem, and you will pay me," he told Jobs. "You can use what I produce, or not, but I will not do options, and either way you will pay me."

Jobs admired that kind of thinking, so he made what was quite a gamble. The company would pay an astonishing $100,000 flat fee to get *one* design. "There was a clarity in our relationship," Jobs said. "He had a purity as an artist, but he was astute at solving business problems. He had a tough exterior, and had perfected the image of a curmudgeon, but he was a teddy bear inside." It was one of Jobs's highest praises: purity as an artist.

It took Rand just two weeks. He flew back to deliver the result to Jobs at his Woodside house. First they had dinner, then Rand handed him an elegant and vibrant booklet that described his thought process. On the final spread, Rand presented the logo he had chosen. "In its design, color arrangement, and orientation, the logo is a study in contrasts," his booklet proclaimed. "Tipped at a jaunty angle, it brims with the informality, friendliness, and spontaneity of a Christmas seal and the authority of a rubber stamp." The word "next" was split into two lines to fill the square face of the cube, with only the "e" in lowercase. That letter stood out, Rand's booklet explained, to connote "education, excellence . . . $e = mc^2$."

It was often hard to predict how Jobs would react to a presentation. He could label it shitty or brilliant; one never knew which way he might go. But with a legendary designer such as Rand, the chances were that Jobs would embrace the proposal. He stared at the final spread, looked up at Rand, and then hugged him. They had one minor disagreement: Rand had used a dark yellow for the "e" in the logo, and Jobs wanted him to change it to a brighter and more traditional yellow. Rand banged his fist on the table and declared, "I've been doing this for fifty years, and I know what I'm doing." Jobs relented.

The company had not only a new logo, but a new name. No longer was it Next. It was NeXT. Others might not have understood the need to obsess over a logo, much less pay $100,000 for one. But for Jobs it meant that NeXT was starting life with a world-class feel and identity, even if it hadn't yet designed its first product. As Markkula had taught him, a great company must be able to impute its values from the first impression it makes.

As a bonus, Rand agreed to design a personal calling card for Jobs. He came up with a colorful type treatment, which Jobs liked, but they ended up having a lengthy and heated disagreement about the placement of the period after the "P" in Steven P. Jobs. Rand had placed the period to the right of the "P.", as it would appear if set in lead type.

Steve preferred the period to be nudged to the left, under the curve of the "P.", as is possible with digital typography. "It was a fairly large argument about something relatively small," Susan Kare recalled. On this one Jobs prevailed.

In order to translate the NeXT logo into the look of real products, Jobs needed an industrial designer he trusted. He talked to a few possibilities, but none of them impressed him as much as the wild Bavarian he had imported to Apple: Hartmut Esslinger, whose frogdesign had set up shop in Silicon Valley and who, thanks to Jobs, had a lucrative contract with Apple. Getting IBM to permit Paul Rand to do work for NeXT was a small miracle willed into existence by Jobs's belief that reality can be distorted. But that was a snap compared to the likelihood that he could convince Apple to permit Esslinger to work for NeXT.

This did not keep Jobs from trying. At the beginning of November 1985, just five weeks after Apple filed suit against him, Jobs wrote to Eisenstat and asked for a dispensation. "I spoke with Hartmut Esslinger this weekend and he suggested I write you a note expressing why I wish to work with him and frogdesign on the new products for NeXT," he said. Astonishingly, Jobs's argument was that he did not know what Apple had in the works, but Esslinger did. "NeXT has no knowledge as to the current or future directions of Apple's product designs, nor do other design firms we might deal with, so it is possible to inadvertently design similar looking products. It is in both Apple's and NeXT's best interest to rely on Hartmut's professionalism to make sure this does not occur." Eisenstat recalled being flabbergasted by Jobs's audacity, and he replied curtly. "I have previously expressed my concern on behalf of Apple that you are engaged in a business course which involves your utilization of Apple's confidential business information," he wrote. "Your letter does not alleviate my concern in any way. In fact it heightens my concern because it states that you have 'no knowledge as to the current or future directions of Apple's product designs,' a statement which is not true." What made the request all the more astonishing to Eisenstat was that it was Jobs who, just a year earlier, had forced frogdesign to abandon its work on Wozniak's remote control device.

Jobs realized that in order to work with Esslinger (and for a variety of other reasons), it would be necessary to resolve the lawsuit that

Apple had filed. Fortunately Sculley was willing. In January 1986 they reached an out-of-court agreement involving no financial damages. In return for Apple's dropping its suit, NeXT agreed to a variety of restrictions: Its product would be marketed as a high-end workstation, it would be sold directly to colleges and universities, and it would not ship before March 1987. Apple also insisted that the NeXT machine "not use an operating system compatible with the Macintosh," though it could be argued that Apple would have been better served by insisting on just the opposite.

After the settlement Jobs continued to court Esslinger until the designer decided to wind down his contract with Apple. That allowed frogdesign to work with NeXT at the end of 1986. Esslinger insisted on having free rein, just as Paul Rand had. "Sometimes you have to use a big stick with Steve," he said. Like Rand, Esslinger was an artist, so Jobs was willing to grant him indulgences he denied other mortals.

Jobs decreed that the computer should be an absolutely perfect cube, with each side exactly a foot long and every angle precisely 90 degrees. He liked cubes. They had gravitas but also the slight whiff of a toy. But the NeXT cube was a Jobsian example of design desires trumping engineering considerations. The circuit boards, which fitted nicely into the traditional pizza-box shape, had to be reconfigured and stacked in order to nestle into a cube.

Even worse, the perfection of the cube made it hard to manufacture. Most parts that are cast in molds have angles that are slightly greater than pure 90 degrees, so that it's easier to get them out of the mold (just as it is easier to get a cake out of a pan that has angles slightly greater than 90 degrees). But Esslinger dictated, and Jobs enthusiastically agreed, that there would be no such "draft angles" that would ruin the purity and perfection of the cube. So the sides had to be produced separately, using molds that cost $650,000, at a specialty machine shop in Chicago. Jobs's passion for perfection was out of control. When he noticed a tiny line in the chassis caused by the molds, something that any other computer maker would accept as unavoidable, he flew to Chicago and convinced the die caster to start over and do it perfectly. "Not a lot of die casters expect a celebrity to fly in," noted one of the engineers. Jobs also had the company buy a $150,000 sanding machine to remove all lines where the mold faces met and insisted that the magnesium case be a matte black, which made it more susceptible to showing blemishes.

Jobs had always indulged his obsession that the unseen parts of a product should be crafted as beautifully as its façade, just as his father had taught him when they were building a fence. This too he took to extremes when he found himself unfettered at NeXT. He made sure that the screws inside the machine had expensive plating. He even insisted that the matte black finish be coated onto the inside of the cube's case, even though only repairmen would see it.

Joe Nocera, then writing for *Esquire*, captured Jobs's intensity at a NeXT staff meeting:

> It's not quite right to say that he is sitting through this staff meeting, because Jobs doesn't sit through much of anything; one of the ways he dominates is through sheer movement. One moment he's kneeling in his chair; the next minute he's slouching in it; the next he has leaped out of his chair entirely and is scribbling on the blackboard directly behind him. He is full of mannerisms. He bites his nails. He stares with unnerving earnestness at whoever is speaking. His hands, which are slightly and inexplicably yellow, are in constant motion.

What particularly struck Nocera was Jobs's "almost willful lack of tact." It was more than just an inability to hide his opinions when others said something he thought dumb; it was a conscious readiness, even a perverse eagerness, to put people down, humiliate them, show he was smarter. When Dan'l Lewin handed out an organization chart, for example, Jobs rolled his eyes. "These charts are bullshit," he interjected. Yet his moods still swung wildly, as at Apple. A finance person came into the meeting and Jobs lavished praise on him for a "really, really great job on this"; the previous day Jobs had told him, "This deal is crap."

One of NeXT's first ten employees was an interior designer for the company's first headquarters, in Palo Alto. Even though Jobs had leased a building that was new and nicely designed, he had it completely gutted and rebuilt. Walls were replaced by glass, the carpets were replaced by light hardwood flooring. The process was repeated when NeXT moved to a bigger space in Redwood City in 1989. Even though the building was brand-new, Jobs insisted that the elevators be moved so that the entrance lobby would be more dramatic. As a centerpiece, Jobs commissioned I. M. Pei to design a grand staircase that seemed to float in the air. The contractor said it couldn't be built. Jobs said it could, and it was. Years later Jobs would make such staircases a feature at Apple's signature stores.

The Computer

During the early months of NeXT, Jobs and Dan'l Lewin went on the road, often accompanied by a few colleagues, to visit campuses and solicit opinions. At Harvard they met with Mitch Kapor, the chairman of Lotus software, over dinner at Harvest restaurant. When Kapor began slathering butter on his bread, Jobs asked him, "Have you ever heard of serum cholesterol?" Kapor responded, "I'll make you a deal. You stay away from commenting on my dietary habits, and I will stay away from the subject of your personality." It was meant humorously, but as Kapor later commented, "Human relationships were not his strong suit." Lotus agreed to write a spreadsheet program for the NeXT operating system.

Jobs wanted to bundle useful content with the machine, so Michael Hawley, one of the engineers, developed a digital dictionary. He learned that a friend of his at Oxford University Press had been involved in the typesetting of a new edition of Shakespeare's works. That meant that there was probably a computer tape he could get his hands on and, if so, incorporate it into the NeXT's memory. "So I called up Steve, and he said that would be awesome, and we flew over to Oxford together." On a beautiful spring day in 1986, they met in the publishing house's grand building in the heart of Oxford, where Jobs made an offer of $2,000 plus 74 cents for every computer sold in order to have the rights to Oxford's edition of Shakespeare. "It will be all gravy to you," he argued. "You will be ahead of the parade. It's never been done before." They agreed in principle and then went out to play skittles over beer at a nearby pub where Lord Byron used to drink. By the time it launched, the NeXT would also include a dictionary, a thesaurus, and the *Oxford Dictionary of Quotations*, making it one of the pioneers of the concept of searchable electronic books.

Instead of using off-the-shelf chips for the NeXT, Jobs had his engineers design custom ones that integrated a variety of functions on one chip. That would have been hard enough, but Jobs made it almost impossible by continually revising the functions he wanted it to do. After a year it became clear that this would be a major source of delay.

He also insisted on building his own fully automated and futuristic factory, just as he had for the Macintosh; he had not been chastened by that experience. This time too he made the same mistakes, only more excessively. Machines and robots were painted and repainted as he compulsively revised his color scheme. The walls were museum white, as they had been at the Macintosh factory, and there were $20,000 black leather chairs and a custom-made staircase, just as in the corporate headquarters. He insisted that the machinery on the 165-foot assembly line be configured to move the circuit boards from right to left as they got built, so that the process would look better to visitors who watched from the viewing gallery. Empty circuit boards were fed in at one end and twenty minutes later, untouched by humans, came out the other end as completed boards. The process followed the Japanese principle known as *kanban*, in which each machine performs its task only when the next machine is ready to receive another part.

Jobs had not tempered his way of dealing with employees. "He applied charm or public humiliation in a way that in most cases proved to be pretty effective," Tribble recalled. But sometimes it wasn't. One engineer, David Paulsen, put in ninety-hour weeks for the first ten months at NeXT. He quit when "Steve walked in one Friday afternoon and told us how unimpressed he was with what we were doing." When *Business Week* asked him why he treated employees so harshly, Jobs said it made the company better. "Part of my responsibility is to be a yardstick of quality. Some people aren't used to an environment where excellence is expected." But he still had his spirit and charisma. There were plenty of field trips, visits by akido masters, and off-site retreats. And he still exuded the pirate flag spunkiness. When Apple fired Chiat/Day, the ad firm that had done the "1984" ad and taken out the newspaper ad saying "Welcome IBM—seriously," Jobs took out a full-page ad in the *Wall Street Journal* proclaiming, "Congratulations Chiat/Day—Seriously . . . Because I can guarantee you: there is life after Apple."

Perhaps the greatest similarity to his days at Apple was that Jobs brought with him his reality distortion field. It was on display at the company's first retreat at Pebble Beach in late 1985. There Jobs pronounced that the first NeXT computer would be shipped in just eighteen months. It was already clear that this date was impossible, but he blew off a suggestion from one engineer that they be realistic and plan on shipping in 1988. "If we do that, the world isn't standing still, the technology window passes us by, and all the work we've done we have to throw down the toilet," he argued.

Joanna Hoffman, the veteran of the Macintosh team who was among those willing to challenge Jobs, did so. "Reality distortion has motivational value, and I think that's fine," she said as Jobs stood at a whiteboard. "However, when it comes to setting a date in a way that affects the design of the product, then we get into real deep shit." Jobs didn't agree: "I think we have to drive a stake in the ground somewhere, and I think if we miss this window, then our credibility starts to erode." What he did not say, even though it was suspected by all, was that if their targets slipped they might run out of money. Jobs had pledged $7 million of his own funds, but at their current burn rate that would run out in eighteen months if they didn't start getting some revenue from shipped products.

Three months later, when they returned to Pebble Beach for their next retreat, Jobs began his list of maxims with "The honeymoon is over." By the time of the third retreat, in Sonoma in September 1986, the timetable was gone, and it looked as though the company would hit a financial wall.

Perot to the Rescue

In late 1986 Jobs sent out a proposal to venture capital firms offering a 10% stake in NeXT for $3 million. That put a valuation on the entire company of $30 million, a number that Jobs had pulled out of thin air. Less than $7 million had gone into the company thus far, and there was little to show for it other than a neat logo and some snazzy offices. It had no revenue or products, nor any on the horizon. Not surprisingly, the venture capitalists all passed on the offer to invest.

There was, however, one cowboy who was dazzled. Ross Perot, the bantam Texan who had founded Electronic Data Systems, then sold it to General Motors for $2.4 billion, happened to watch a PBS documentary, *The Entrepreneurs*, which had a segment on Jobs and NeXT in November 1986. He instantly identified with Jobs and his gang, so much so that, as he watched them on television, he said, "I was finishing their sentences for them." It was a line eerily similar to one Sculley had often used. Perot called Jobs the next day and offered, "If you ever need an investor, call me."

Jobs did indeed need one, badly. But he was careful not to show it. He waited a week before calling back. Perot sent some of his analysts to size up NeXT, but Jobs took care to deal directly with Perot. One of his great regrets in life, Perot later said, was that he had not bought Microsoft, or a large stake in it, when a very young Bill Gates had come to visit him in Dallas in 1979. By the time Perot called Jobs, Microsoft had just gone public with a $1 billion valuation. Perot had missed out on the opportunity to make a lot of money and have a fun adventure. He was eager not to make that mistake again.

Jobs made an offer to Perot that was three times more costly than had quietly been offered to venture capitalists a few months earlier. For $20 million, Perot would get 16% of the equity in the company, after Jobs put in another $5 million. That meant the company would be valued at about $126 million. But money was not a major consideration for Perot. After a meeting with Jobs, he declared that he was in. "I pick the jockeys, and the jockeys pick the horses and ride them," he told Jobs. "You guys are the ones I'm betting on, so you figure it out."

Perot brought to NeXT something that was almost as valuable as his $20 million lifeline: He was a quotable, spirited cheerleader for the company, who could lend it an air of credibility among grown-ups. "In terms of a startup company, it's one that carries the least risk of any I've seen in 25 years in the computer industry," he told the *New York Times.* "We've had some sophisticated people see the hardware—it blew them away. Steve and his whole NeXT team are the darnedest bunch of perfectionists I've ever seen."

Perot also traveled in rarefied social and business circles that complemented Jobs's own. He took Jobs to a black-tie dinner dance in San Francisco that Gordon and Ann Getty gave for King Juan Carlos I of Spain. When the king asked Perot whom he should meet, Perot immediately produced Jobs. They were soon engaged in what Perot later described as "electric conversation," with Jobs animatedly describing the next wave in computing. At the end the king scribbled a note and handed it to Jobs. "What happened?" Perot asked. Jobs answered, "I sold him a computer."

These and other stories were incorporated into the mythologized story of Jobs that Perot told wherever he went. At a briefing at the National Press Club in Washington, he spun Jobs's life story into a Texas-size yarn about a young man

> so poor he couldn't afford to go to college, working in his garage at night, playing with computer chips, which was his hobby, and his dad—who looks like a character out of a Norman Rockwell painting—comes in one day and said, "Steve, either make something you can sell or go get a job." Sixty days later, in a wooden box that his dad made for him, the first Apple computer was created. And this high school graduate literally changed the world.

The one phrase that was true was the one about Paul Jobs's looking like someone in a Rockwell painting. And perhaps the last phrase, the one about Jobs changing the world. Certainly Perot believed that. Like Sculley, he saw himself in Jobs. "Steve's like me," Perot told the *Washington Post*'s David Remnick. "We're weird in the same way. We're soul mates."

Gates and NeXT

Bill Gates was not a soul mate. Jobs had convinced him to produce software applications for the Macintosh, which had turned out to be hugely profitable for Microsoft. But Gates was one person who was resistant to Jobs's reality distortion field, and as a result he decided not to create software tailored for the NeXT platform. Gates went to California to get periodic demonstrations, but each time he came away unimpressed. "The Macintosh was truly unique, but I personally don't understand what is so unique about Steve's new computer," he told *Fortune.*

Part of the problem was that the rival titans were congenitally unable to be deferential to each other. When Gates made his first visit to NeXT's Palo Alto headquarters, in the summer of 1987, Jobs kept him waiting for a half hour in the lobby, even though Gates could see through the glass walls that Jobs was walking around having casual conversations. "I'd gone down to NeXT and I had the Odwalla, the most expensive carrot juice, and I'd never seen tech offices so lavish," Gates recalled, shaking his head with just a hint of a smile. "And Steve comes a half hour late to the meeting."

Jobs's sales pitch, according to Gates, was simple. "We did the Mac together," Jobs said. "How did that work for you? Very well. Now, we're going to do this together and this is going to be great."

But Gates was brutal to Jobs, just as Jobs could be to others. "This machine is crap," he said. "The optical disk has too low latency, the fucking case is too expensive. This thing is ridiculous." He decided then, and reaffirmed on each subsequent visit, that it made no sense for Microsoft to divert resources from other projects to develop applications for NeXT. Worse yet, he repeatedly said so publicly, which made others less likely to spend time developing for NeXT. "Develop for it? I'll piss on it," he told *InfoWorld.*

When they happened to meet in the hallway at a conference, Jobs started berating Gates for his refusal to do software for NeXT. "When you get a market, I will consider it," Gates replied. Jobs got angry. "It was a screaming battle, right in front of everybody," recalled Adele

Goldberg, the Xerox PARC engineer. Jobs insisted that NeXT was the next wave of computing. Gates, as he often did, got more expressionless as Jobs got more heated. He finally just shook his head and walked away.

Beneath their personal rivalry—and occasional grudging respect—was their basic philosophical difference. Jobs believed in an end-to-end integration of hardware and software, which led him to build a machine that was not compatible with others. Gates believed in, and profited from, a world in which different companies made machines that were compatible with one another; their hardware ran a standard operating system (Microsoft's Windows) and could all use the same software apps (such as Microsoft's Word and Excel). "His product comes with an interesting feature called incompatibility," Gates told the *Washington Post.* "It doesn't run any of the existing software. It's a super-nice computer. I don't think if I went out to design an incompatible computer I would have done as well as he did."

At a forum in Cambridge, Massachusetts, in 1989, Jobs and Gates appeared sequentially, laying out their competing worldviews. Jobs spoke about how new waves come along in the computer industry every few years. Macintosh had launched a revolutionary new approach with the graphical interface; now NeXT was doing it with object-oriented programming tied to a powerful new machine based on an optical disk. Every major software vendor realized they had to be part of this new wave, he said, "except Microsoft." When Gates came up, he reiterated his belief that Jobs's end-to-end control of the software and the hardware was destined for failure, just as Apple had failed in competing against the Microsoft Windows standard. "The hardware market and the software market are separate," he said. When asked about the great design that could come from Jobs's approach, Gates gestured to the NeXT prototype that was still sitting onstage and sneered, "If you want black, I'll get you a can of paint."

IBM

Jobs came up with a brilliant jujitsu maneuver against Gates, one that could have changed the balance of power in the computer industry forever. It required Jobs to do two things that were against his nature: licensing out his software to another hardware maker and getting into bed with IBM. He had a pragmatic streak, albeit a tiny one, so he was able to overcome his reluctance. But his heart was never fully in it, which is why the alliance would turn out to be short-lived.

It began at a party, a truly memorable one, for the seventieth birthday of the *Washington Post* publisher Katharine Graham in June 1987 in Washington. Six hundred guests attended, including President Ronald Reagan. Jobs flew in from California and IBM's chairman John Akers from New York. It was the first time they had met. Jobs took the opportunity to bad-mouth Microsoft and attempt to wean IBM from using its Windows operating system. "I couldn't resist telling him I thought IBM was taking a giant gamble betting its entire software strategy on Microsoft, because I didn't think its software was very good," Jobs recalled.

To Jobs's delight, Akers replied, "How would you like to help us?" Within a few weeks Jobs showed up at IBM's Armonk, New York, headquarters with his software engineer Bud Tribble. They put on a demo of NeXT, which impressed the IBM engineers. Of particular significance was NeXTSTEP, the machine's object-oriented operating system. "NeXTSTEP took care of a lot of trivial programming chores that slow down the software development process," said Andrew Heller, the general manager of IBM's workstation unit, who was so impressed by Jobs that he named his newborn son Steve.

The negotiations lasted into 1988, with Jobs becoming prickly over tiny details. He would stalk out of meetings over disagreements about colors or design, only to be calmed down by Tribble or Lewin. He didn't seem to know which frightened him more, IBM or Microsoft. In April Perot decided to play host for a mediating session at his Dallas headquarters, and a deal was struck: IBM would license the current version of the NeXTSTEP software, and if the managers liked it, they would use it on some of their workstations. IBM sent to Palo Alto a 125-page contract. Jobs tossed it down without reading it. "You don't get it," he said as he walked out of the room. He demanded a simpler contract of only a few pages, which he got within a week.

Jobs wanted to keep the arrangement secret from Bill Gates until the big unveiling of the NeXT computer, scheduled for October. But IBM insisted on being forthcoming. Gates was furious. He realized this could wean IBM off its dependence on Microsoft operating systems. "NeXTSTEP isn't compatible with anything," he raged to IBM executives.

At first Jobs seemed to have pulled off Gates's worst nightmare. Other computer makers that were beholden to Microsoft's operating systems, most notably Compaq and Dell, came to ask Jobs for the right to clone NeXT and license NeXTSTEP. There were even offers to pay a lot more if NeXT would get out of the hardware business altogether.

That was too much for Jobs, at least for the time being. He cut off the clone discussions. And he began to cool toward IBM. The chill became reciprocal. When the person who made the deal at IBM moved on, Jobs went to Armonk to meet his replacement, Jim Cannavino. They cleared the room and talked one-on-one. Jobs demanded more money to keep the relationship going and to license newer versions of NeXTSTEP to IBM. Cannavino made no commitments, and he subsequently stopped returning Jobs's phone calls. The deal lapsed. NeXT got a bit of money for a licensing fee, but it never got the chance to change the world.

The Launch, October 1988

Jobs had perfected the art of turning product launches into theatrical productions, and for the world premiere of the NeXT computer—on October 12, 1988, in San Francisco's Symphony Hall—he wanted to outdo himself. He needed to blow away the doubters. In the weeks leading up to the event, he drove up to San Francisco almost every day to hole up in the Victorian house of Susan Kare, NeXT's graphic designer, who had done the original fonts and icons for the Macintosh.

She helped prepare each of the slides as Jobs fretted over everything from the wording to the right hue of green to serve as the background color. "I like that green," he said proudly as they were doing a trial run in front of some staffers. "Great green, great green," they all murmured in assent.

No detail was too small. Jobs went over the invitation list and even the lunch menu (mineral water, croissants, cream cheese, bean sprouts). He picked out a video projection company and paid it $60,000 for help. And he hired the postmodernist theater producer George Coates to stage the show. Coates and Jobs decided, not surprisingly, on an austere and radically simple stage look. The unveiling of the black perfect cube would occur on a starkly minimalist stage setting with a black background, a table covered by a black cloth, a black veil draped over the computer, and a simple vase of flowers. Because neither the hardware nor the operating system was actually ready, Jobs was urged to do a simulation. But he refused. Knowing it would be like walking a tightrope without a net, he decided to do the demonstration live.

More than three thousand people showed up at the event, lining up two hours before curtain time. They were not disappointed, at least by the show. Jobs was onstage for three hours, and he again proved to be, in the words of Andrew Pollack of the *New York Times*, "the Andrew Lloyd Webber of product introductions, a master of stage flair and special effects." Wes Smith of the *Chicago Tribune* said the launch was "to product demonstrations what Vatican II was to church meetings."

Jobs had the audience cheering from his opening line: "It's great to be back." He began by recounting the history of personal computer architecture, and he promised that they would now witness an event "that occurs only once or twice in a decade—a time when a new architecture is rolled out that is going to change the face of computing." The NeXT software and hardware were designed, he said, after three years of consulting with universities across the country. "What we realized was that higher ed wants a personal mainframe."

As usual there were superlatives. The product was "incredible," he said, "the best thing we could have imagined." He praised the beauty of even the parts unseen. Balancing on his fingertips the foot-square circuit board that would be nestled in the foot-cube box, he enthused, "I hope you get a chance to look at this a little later. It's the most beautiful printed circuit board I've ever seen in my life." He then showed how the computer could play speeches—he featured King's "I Have a Dream" and Kennedy's "Ask Not"—and send email with audio attachments. He leaned into the microphone on the computer to record one of his own. "Hi, this is Steve, sending a message on a pretty historic day." Then he asked those in the audience to add "a round of applause" to the message, and they did.

One of Jobs's management philosophies was that it is crucial, every now and then, to roll the dice and "bet the company" on some new idea or technology. At the NeXT launch, he boasted of an example that, as it turned out, would not be a wise gamble: having a high-capacity (but slow) optical read/write disk and no floppy disk as a backup. "Two years ago we made a decision," he said. "We saw some new technology and we made a decision to risk our company."

Then he turned to a feature that would prove more prescient. "What we've done is made the first real digital books," he said, noting the inclusion of the Oxford edition of Shakespeare and other tomes. "There has not been an advancement in the state of the art of printed book technology since Gutenberg."

At times he could be amusingly aware of his own foibles, and he used the electronic book demonstration to poke fun at himself. "A word that's sometimes used to describe me is 'mercurial,' " he said, then paused. The audience laughed knowingly, especially those in the front rows, which were filled with NeXT employees and former members of the Macintosh team. Then he pulled up the word in the computer's dictionary and read the first definition: "Of or relating to, or born under the planet Mercury." Scrolling down, he said, "I think the third one is the one they mean: 'Characterized by unpredictable changeableness of mood.' " There was a bit more laughter. "If we scroll down the thesaurus, though, we see that the antonym is 'saturnine.' Well what's that? By simply double-clicking on it, we immediately look that up in the dictionary, and here it is: 'Cold and steady in moods. Slow to act or change. Of a gloomy or surly disposition.' " A little smile came across his face as he waited for the ripple of laughter. "Well," he concluded, "I don't think 'mercurial' is so bad after all." After the applause, he used the quotations book to make a more subtle point, about his reality distortion field. The quote he chose was from Lewis Carroll's *Through the Looking Glass.* After Alice laments that no matter how hard she tries she can't believe impossible things, the White Queen retorts, "Why, sometimes I've believed as many as six impossible things before breakfast." Especially from the front rows, there was a roar of knowing laughter.

All of the good cheer served to sugarcoat, or distract attention from, the bad news. When it came time to announce the price of the new machine, Jobs did what he would often do in product demonstrations: reel off the features, describe them as being "worth thousands and thousands of dollars," and get the audience to imagine how expensive it really should be. Then he announced what he hoped would seem like a low price: "We're going to be charging higher education a single price of $6,500." From the faithful, there was scattered applause. But his panel of academic advisors had long pushed to keep the price to between $2,000 and $3,000, and they thought that Jobs had promised to do so. Some of them were appalled. This was especially true once they discovered that the optional printer would cost another $2,000, and the slowness of the optical disk would make the purchase of a $2,500 external hard disk advisable.

There was another disappointment that he tried to downplay: "Early next year, we will have our 0.9 release, which is for software developers and aggressive end users." There was a bit of nervous laughter. What he was saying was that the real release of the machine and its software, known as the 1.0 release, would not actually be happening in early 1989. In fact he didn't set a hard date. He merely suggested it would be sometime in the second quarter of that year. At the first NeXT retreat back in late 1985, he had refused to budge, despite Joanna Hoffman's pushback, from his commitment to have the machine finished in early 1987. Now it was clear it would be more than two years later.

The event ended on a more upbeat note, literally. Jobs brought onstage a violinist from the San Francisco Symphony who played Bach's A Minor Violin Concerto in a duet with the NeXT computer onstage. People erupted in jubilant applause. The price and the delayed release were forgotten in the frenzy. When one reporter asked him immediately afterward why the machine was going to be so late, Jobs replied, "It's not late. It's five years ahead of its time."

As would become his standard practice, Jobs offered to provide "exclusive" interviews to anointed publications in return for their promising to put the story on the cover. This time he went one "exclusive" too far, though it didn't really hurt. He agreed to a request from *Business Week*'s Katie Hafner for exclusive access to him before the launch, but he also made a similar deal with *Newsweek* and then with *Fortune.* What he didn't consider was that one of *Fortune*'s top editors, Susan Fraker, was married to *Newsweek*'s editor Maynard Parker. At the *Fortune* story conference, when they were talking excitedly about their exclusive, Fraker mentioned that she happened to know that *Newsweek* had also been promised an exclusive, and it would be coming out a few days before *Fortune.* So Jobs ended up that week on only two magazine covers. *Newsweek* used the cover line "Mr. Chips" and showed him leaning on a beautiful NeXT, which it proclaimed to be "the most exciting machine in years." *Business Week* showed him looking angelic in a dark suit, fingertips pressed together like a preacher or professor. But Hafner pointedly reported on the manipulation that surrounded her exclusive. "NeXT carefully parceled out interviews with its staff and suppliers, monitoring them with a censor's eye," she wrote. "That strategy worked, but at a price: Such maneuvering—self-serving and relentless—displayed the side of Steve Jobs that so hurt him at Apple. The trait that most stands out is Jobs's need to control events."

When the hype died down, the reaction to the NeXT computer was muted, especially since it was not yet commercially available. Bill Joy, the brilliant and wry chief scientist at rival Sun Microsystems, called it "the first Yuppie workstation," which was not an unalloyed compliment. Bill Gates, as might be expected, continued to be publicly dismissive. "Frankly, I'm disappointed," he told the *Wall Street Journal.* "Back in 1981, we were truly excited by the Macintosh when Steve showed it to us, because when you put it side-by-side with another computer, it was unlike anything anybody had ever seen before." The NeXT machine was not like that. "In the grand scope of things, most of these features are truly trivial." He said that Microsoft would continue its plans not to write software for the NeXT. Right after the announcement event, Gates wrote a parody email to his staff. "All reality has been completely suspended," it began. Looking back at it, Gates laughs that it may have been "the best email I ever wrote."

When the NeXT computer finally went on sale in mid-1989, the factory was primed to churn out ten thousand units a month. As it turned out, sales were about four hundred a month. The beautiful factory robots, so nicely painted, remained mostly idle, and NeXT continued to hemorrhage cash.

CHAPTER NINETEEN

PIXAR

Technology Meets Art

Ed Catmull, Steve Jobs, and John Lasseter, 1999

Lucasfilm's Computer Division

When Jobs was losing his footing at Apple in the summer of 1985, he went for a walk with Alan Kay, who had been at Xerox PARC and was then an Apple Fellow. Kay knew that Jobs was interested in the intersection of creativity and technology, so he suggested they go see a friend of his, Ed Catmull, who was running the computer division of George Lucas's film studio. They rented a limo and rode up to Marin County to the edge of Lucas's Skywalker Ranch, where Catmull and his little computer division were based. "I was blown away, and I came back and tried to convince Sculley to buy it for Apple," Jobs recalled. "But the folks running Apple weren't interested, and they were busy kicking me out anyway."

The Lucasfilm computer division made hardware and software for rendering digital images, and it also had a group of computer animators making shorts, which was led by a talented cartoon-loving executive named John Lasseter. Lucas, who had completed his first *Star Wars* trilogy, was embroiled in a contentious divorce, and he needed to sell off the division. He told Catmull to find a buyer as soon as possible.

After a few potential purchasers balked in the fall of 1985, Catmull and his colleague Alvy Ray Smith decided to seek investors so that they could buy the division themselves. So they called Jobs, arranged another meeting, and drove down to his Woodside house. After railing for a while about the perfidies and idiocies of Sculley, Jobs proposed that he buy their Lucasfilm division outright. Catmull and Smith demurred: They wanted an investor, not a new owner. But it soon became clear that there was a middle ground: Jobs could buy a majority of the division and serve as chairman but allow Catmull and Smith to run it.

"I wanted to buy it because I was really into computer graphics," Jobs recalled. "I realized they were way ahead of others in combining art and technology, which is what I've always been interested in." He offered to pay Lucas $5 million plus invest another $5 million to capitalize the division as a stand-alone company. That was far less than Lucas had been asking, but the timing was right. They decided to negotiate a deal.

The chief financial officer at Lucasfilm found Jobs arrogant and prickly, so when it came time to hold a meeting of all the players, he told Catmull, "We have to establish the right pecking order." The plan was to gather everyone in a room with Jobs, and then the CFO would come in a few minutes late to establish that he was the person running the meeting. "But a funny thing happened," Catmull recalled. "Steve started the meeting on time without the CFO, and by the time the CFO walked in Steve was already in control of the meeting."

Jobs met only once with George Lucas, who warned him that the people in the division cared more about making animated movies than they did about making computers. "You know, these guys are hell-bent on animation," Lucas told him. Lucas later recalled, "I did warn him that was basically Ed and John's agenda. I think in his heart he bought the company because that was his agenda too."

The final agreement was reached in January 1986. It provided that, for his $10 million investment, Jobs would own 70% of the company, with the rest of the stock distributed to Ed Catmull, Alvy Ray Smith, and the thirty-eight other founding employees, down to the receptionist. The division's most important piece of hardware was called the Pixar Image Computer, and from it the new company took its name.

For a while Jobs let Catmull and Smith run Pixar without much interference. Every month or so they would gather for a board meeting, usually at NeXT headquarters, where Jobs would focus on the finances and strategy. Nevertheless, by dint of his personality and controlling instincts, Jobs was soon playing a stronger role. He spewed out a stream of ideas—some reasonable, others wacky—about what Pixar's hardware and software could become. And on his occasional visits to the Pixar offices, he was an inspiring presence. "I grew up a Southern Baptist, and we had revival meetings with mesmerizing but corrupt preachers," recounted Alvy Ray Smith. "Steve's got it: the power of the tongue and the web of words that catches people up. We were aware of this when we had board meetings, so we developed signals—nose scratching or ear tugs—for when someone had been caught up in Steve's distortion field and he needed to be tugged back to reality."

Jobs had always appreciated the virtue of integrating hardware and software, which is what Pixar did with its Image Computer and rendering software. It also produced creative content, such as animated films and graphics. All three elements benefited from Jobs's combination of artistic creativity and technological geekiness. "Silicon Valley folks don't really respect Hollywood creative types, and the Hollywood folks think that tech folks are people you hire and never have to meet," Jobs later said. "Pixar was one place where both cultures were respected."

Initially the revenue was supposed to come from the hardware side. The Pixar Image Computer sold for $125,000. The primary customers were animators and graphic designers, but the machine also soon found specialized markets in the medical industry (CAT scan data could be rendered in three-dimensional graphics) and intelligence fields (for rendering information from reconnaissance flights and satellites). Because of the sales to the National Security Agency, Jobs had to get a security clearance, which must have been fun for the FBI agent assigned to vet him. At one point, a Pixar executive recalled, Jobs was called by the investigator to go over the drug use questions, which he answered unabashedly. "The last time I used that . . . ," he would say, or on occasion he would answer that no, he had actually never tried that particular drug.

Jobs pushed Pixar to build a lower-cost version of the computer that would sell for around $30,000. He insisted that Hartmut Esslinger design it, despite protests by Catmull and Smith about his fees. It ended up looking like the original Pixar Image Computer, which was a cube with a round dimple in the middle, but it had Esslinger's signature thin grooves.

Jobs wanted to sell Pixar's computers to a mass market, so he had the Pixar folks open up sales offices—for which he approved the design—in major cities, on the theory that creative people would soon come up with all sorts of ways to use the machine. "My view is that people are creative animals and will figure out clever new ways to use tools that the inventor never imagined," he later said. "I thought that would happen with the Pixar computer, just as it did with the Mac." But the machine never took hold with regular consumers. It cost too much, and there were not many software programs for it.

On the software side, Pixar had a rendering program, known as Reyes (Renders everything you ever saw), for making 3-D graphics and images. After Jobs became chairman, the company created a new language and interface, named RenderMan, that it hoped would become a standard for 3-D graphics rendering, just as Adobe's PostScript was for laser printing.

As he had with the hardware, Jobs decided that they should try to find a mass market, rather than just a specialized one, for the software they made. He was never content to aim only at the corporate or high-end specialized markets. "He would have these great visions of how RenderMan could be for everyman," recalled Pam Kerwin, Pixar's marketing director. "He kept coming up with ideas about how ordinary people would use it to make amazing 3-D graphics and photorealistic images." The Pixar team would try to dissuade him by saying that RenderMan was not as easy to use as, say, Excel or Adobe Illustrator. Then Jobs would go to a whiteboard and show them how to make it simpler and more user-friendly. "We would be nodding our heads and getting excited and say, 'Yes, yes, this will be great!'" Kerwin recalled. "And then he would leave and we would consider it for a moment and then say, 'What the heck was he thinking!' He was so weirdly charismatic that you almost had to get deprogrammed after you talked to him." As it turned out, average consumers were not craving expensive software that would let them render realistic images. RenderMan didn't take off.

There was, however, one company that was eager to automate the rendering of animators' drawings into color images for film. When Roy Disney led a board revolution at the company that his uncle Walt had founded, the new CEO, Michael Eisner, asked what role he wanted. Disney said that he would like to revive the company's venerable but fading animation department. One of his first initiatives was to look at ways to computerize the process, and Pixar won the contract. It created a package of customized hardware and software known as CAPS, Computer Animation Production System. It was first used in 1988 for the final scene of *The Little Mermaid*, in which King Triton waves good-bye to Ariel. Disney bought dozens of Pixar Image Computers as CAPS became an integral part of its production.

Animation

The digital animation business at Pixar—the group that made little animated films—was originally just a sideline, its main purpose being to show off the hardware and software of the company. It was run by John Lasseter, a man whose childlike face and demeanor masked an artistic perfectionism that rivaled that of Jobs. Born in Hollywood, Lasseter grew up loving Saturday morning cartoon shows. In ninth grade, he wrote a report on the history of Disney Studios, and he decided then how he wished to spend his life.

When he graduated from high school, Lasseter enrolled in the animation program at the California Institute of the Arts, founded by Walt Disney. In his summers and spare time, he researched the Disney archives and worked as a guide on the Jungle Cruise ride at Disneyland. The latter experience taught him the value of timing and pacing in telling a story, an important but difficult concept to master when creating, frame by frame, animated footage. He won the Student Academy Award for the short he made in his junior year, *Lady and the Lamp*, which showed his debt to Disney films and foreshadowed his signature talent for infusing inanimate objects such as lamps with human personalities. After graduation he took the job for which he was destined: as an animator at Disney Studios.

Except it didn't work out. "Some of us younger guys wanted to bring *Star Wars*–level quality to the art of animation, but we were held in check," Lasseter recalled. "I got disillusioned, then I got caught in a feud between two bosses, and the head animation guy fired me." So in 1984 Ed Catmull and Alvy Ray Smith were able to recruit him to work where *Star Wars*–level quality was being defined, Lucasfilm. It was not certain that George Lucas, already worried about the cost of his computer division, would really approve of hiring a full-time animator, so Lasseter was given the title "interface designer."

After Jobs came onto the scene, he and Lasseter began to share their passion for graphic design. "I was the only guy at Pixar who was an artist, so I bonded with Steve over his design sense," Lasseter said. He was a gregarious, playful, and huggable man who wore flowery Hawaiian shirts, kept his office cluttered with vintage toys, and loved cheeseburgers. Jobs was a prickly, whip-thin vegetarian who favored austere and uncluttered surroundings. But they were actually well-suited for each other. Lasseter was an artist, so Jobs treated him deferentially, and Lasseter viewed Jobs, correctly, as a patron who could appreciate artistry and knew how it could be interwoven with technology and commerce.

Jobs and Catmull decided that, in order to show off their hardware and software, Lasseter should produce another short animated film in 1986 for SIGGRAPH, the annual computer graphics conference. At the time, Lasseter was using the Luxo lamp on his desk as a model for graphic rendering, and he decided to turn Luxo into a lifelike character. A friend's young child inspired him to add Luxo Jr., and he showed a few test frames to another animator, who urged him to make sure he told a story. Lasseter said he was making only a short, but the animator reminded him that a story can be told even in a few seconds. Lasseter took the lesson to heart. *Luxo Jr.* ended up being just over two minutes; it told the tale of a parent lamp and a child lamp pushing a ball back and forth until the ball bursts, to the child's dismay.

Jobs was so excited that he took time off from the pressures at NeXT to fly down with Lasseter to SIGGRAPH, which was being held in Dallas that August. "It was so hot and muggy that when we'd walk outside the air hit us like a tennis racket," Lasseter recalled. There were ten thousand people at the trade show, and Jobs loved it. Artistic creativity energized him, especially when it was connected to technology.

There was a long line to get into the auditorium where the films were being screened, so Jobs, not one to wait his turn, fast-talked their way in first. *Luxo Jr.* got a prolonged standing ovation and was named the best film. "Oh, wow!" Jobs exclaimed at the end. "I really get this, I get what it's all about." As he later explained, "Our film was the only one that had art to it, not just good technology. Pixar was about making that combination, just as the Macintosh had been."

Luxo Jr. was nominated for an Academy Award, and Jobs flew down to Los Angeles to be there for the ceremony. It didn't win, but Jobs became committed to making new animated shorts each year, even though there was not much of a business rationale for doing so. As times got tough at Pixar, he would sit through brutal budget-cutting meetings showing no mercy. Then Lasseter would ask that the money they had just saved be used for his next film, and Jobs would agree.

Tin Toy

Not all of Jobs's relationships at Pixar were as good. His worst clash came with Catmull's cofounder, Alvy Ray Smith. From a Baptist background in rural north Texas, Smith became a free-spirited hippie computer imaging engineer with a big build, big laugh, and big personality—and occasionally an ego to match. "Alvy just glows, with a high color, friendly laugh, and a whole bunch of groupies at conferences," said Pam Kerwin. "A personality like Alvy's was likely to ruffle Steve. They are both visionaries and high energy and high ego. Alvy is not as willing to make peace and overlook things as Ed was."

Smith saw Jobs as someone whose charisma and ego led him to abuse power. "He was like a televangelist," Smith said. "He wanted to control people, but I would not be a slave to him, which is why we clashed. Ed was much more able to go with the flow." Jobs would sometimes assert his dominance at a meeting by saying something outrageous or untrue. Smith took great joy in calling him on it, and he would do so with a large laugh and a smirk. This did not endear him to Jobs.

One day at a board meeting, Jobs started berating Smith and other top Pixar executives for the delay in getting the circuit boards completed for the new version of the Pixar Image Computer. At the time, NeXT was also very late in completing its own computer boards, and Smith pointed that out: "Hey, you're even later with your NeXT boards, so quit jumping on us." Jobs went ballistic, or in Smith's phrase, "totally nonlinear." When Smith was feeling attacked or confrontational, he tended to lapse into his southwestern accent. Jobs started parodying it in his sarcastic style. "It was a bully tactic, and I exploded with everything I had," Smith recalled. "Before I knew it, we were in each other's faces—about three inches apart—screaming at each other."

Jobs was very possessive about control of the whiteboard during a meeting, so the burly Smith pushed past him and started writing on it. "You can't do that!" Jobs shouted.

"What?" responded Smith, "I can't write on your whiteboard? Bullshit." At that point Jobs stormed out.

Smith eventually resigned to form a new company to make software for digital drawing and image editing. Jobs refused him permission to use some code he had created while at Pixar, which further inflamed their enmity. "Alvy eventually got what he needed," said Catmull, "but he was very stressed for a year and developed a lung infection." In the end it worked out well enough; Microsoft eventually bought Smith's company, giving him the distinction of being a founder of one company that was sold to Jobs and another that was sold to Gates.

Ornery in the best of times, Jobs became particularly so when it became clear that all three Pixar endeavors—hardware, software, and animated content—were losing money. "I'd get these plans, and in the end I kept having to put in more money," he recalled. He would rail, but then write the check. Having been ousted at Apple and flailing at NeXT, he couldn't afford a third strike.

To stem the losses, he ordered a round of deep layoffs, which he executed with his typical empathy deficiency. As Pam Kerwin put it, he had "neither the emotional nor financial runway to be decent to people he was letting go." Jobs insisted that the firings be done immediately, with no severance pay. Kerwin took Jobs on a walk around the parking lot and begged that the employees be given at least two weeks notice. "Okay," he shot back, "but the notice is retroactive from two weeks ago." Catmull was in Moscow, and Kerwin put in frantic calls to him. When he returned, he was able to institute a meager severance plan and calm things down just a bit.

At one point the members of the Pixar animation team were trying to convince Intel to let them make some of its commercials, and Jobs became impatient. During a meeting, in the midst of berating an Intel marketing director, he picked up the phone and called CEO Andy Grove directly. Grove, still playing mentor, tried to teach Jobs a lesson: He supported his Intel manager. "I stuck by my employee," he recalled. "Steve doesn't like to be treated like a supplier."

Grove also played mentor when Jobs proposed that Pixar give Intel suggestions on how to improve the capacity of its processors to render 3-D graphics. When the engineers at Intel accepted the offer, Jobs sent an email back saying Pixar would need to be paid for its advice. Intel's chief engineer replied, "We have not entered into any financial arrangement in exchange for good ideas for our microprocessors in the past and have no intention for the future." Jobs forwarded the answer to Grove, saying that he found the engineer's response to be "extremely arrogant, given Intel's dismal showing in understanding computer graphics." Grove sent Jobs a blistering reply, saying that sharing ideas is "what friendly companies and friends do for each other." Grove added that he had often freely shared ideas with Jobs in the past and that Jobs should not be so mercenary. Jobs relented. "I have many faults, but one of them is not ingratitude," he responded. "Therefore, I have changed my position 180 degrees—we will freely help. Thanks for the clearer perspective."

Pixar was able to create some powerful software products aimed at average consumers, or at least those average consumers who shared Jobs's passion for designing things. Jobs still hoped that the ability to make super-realistic 3-D images at home would become part of the desktop publishing craze. Pixar's Showplace, for example, allowed users to change the shadings on the 3-D objects they created so that they could display them from various angles with appropriate shadows. Jobs thought it was incredibly compelling, but most consumers were content to live without it. It was a case where his passions misled him: The software had so many amazing features that it lacked the simplicity Jobs usually demanded. Pixar couldn't compete with Adobe, which was making software that was less sophisticated but far less complicated and expensive.

Even as Pixar's hardware and software product lines foundered, Jobs kept protecting the animation group. It had become for him a little island of magical artistry that gave him deep emotional pleasure, and he was willing to nurture it and bet on it. In the spring of 1988 cash was running so short that he convened a meeting to decree deep spending cuts across the board. When it was over, Lasseter and his animation group were almost too afraid to ask Jobs about authorizing some extra money for another short. Finally, they broached the topic and Jobs sat silent, looking skeptical. It would require close to $300,000 more out of his pocket. After a few minutes, he asked if there were any storyboards. Catmull took him down to the animation offices, and once Lasseter started his show—displaying his boards, doing the voices, showing his passion for his product—Jobs started to warm up.

The story was about Lasseter's love, classic toys. It was told from the perspective of a toy one-man band named Tinny, who meets a baby that charms and terrorizes him. Escaping under the couch, Tinny finds other frightened toys, but when the baby hits his head and cries, Tinny goes back out to cheer him up.

Jobs said he would provide the money. "I believed in what John was doing," he later said. "It was art. He cared, and I cared. I always said yes." His only comment at the end of Lasseter's presentation was, "All I ask of you, John, is to make it great."

Tin Toy went on to win the 1988 Academy Award for animated short films, the first computer-generated film to do so. To celebrate, Jobs took Lasseter and his team to Greens, a vegetarian restaurant in San Francisco. Lasseter grabbed the Oscar, which was in the center of the table, held it aloft, and toasted Jobs by saying, "All you asked is that we make a great movie."

The new team at Disney—Michael Eisner the CEO and Jeffrey Katzenberg in the film division—began a quest to get Lasseter to come back. They liked *Tin Toy*, and they thought that something more could be done with animated stories of toys that come alive and have human emotions. But Lasseter, grateful for Jobs's faith in him, felt that Pixar was the only place where he could create a new world of computer-generated animation. He told Catmull, "I can go to Disney and be a director, or I can stay here and make history." So Disney began talking about making a production deal with Pixar. "Lasseter's shorts were really breathtaking both in storytelling and in the use of technology," recalled Katzenberg. "I tried so hard to get him to Disney, but he was loyal to Steve and Pixar. So if you can't beat them, join them. We decided to look for ways we could join up with Pixar and have them make a film about toys for us."

By this point Jobs had poured close to $50 million of his own money into Pixar—more than half of what he had pocketed when he cashed out of Apple—and he was still losing money at NeXT. He was hard-nosed about it; he forced all Pixar employees to give up their options as part of his agreement to add another round of personal funding in 1991. But he was also a romantic in his love for what artistry and technology could do together. His belief that ordinary consumers would love to do 3-D modeling on Pixar software turned out to be wrong, but that was soon replaced by an instinct that turned out to be right: that combining great art and digital technology would transform animated films more than anything had since 1937, when Walt Disney had given life to Snow White.

Looking back, Jobs said that, had he known more, he would have focused on animation sooner and not worried about pushing the company's hardware or software applications. On the other hand, had he known the hardware and software would never be profitable, he would not have taken over Pixar. "Life kind of snookered me into doing that, and perhaps it was for the better."

CHAPTER TWENTY

A REGULAR GUY

Love Is Just a Four-Letter Word

Mona Simpson and her fiancé, Richard Appel, 1991

Joan Baez

In 1982, when he was still working on the Macintosh, Jobs met the famed folksinger Joan Baez through her sister Mimi Fariña, who headed a charity that was trying to get donations of computers for prisons. A few weeks later he and Baez had lunch in Cupertino. "I wasn't expecting a lot, but she was really smart and funny," he recalled. At the time, he was nearing the end of his relationship with Barbara Jasinski. They had vacationed in Hawaii, shared a house in the Santa Cruz mountains, and even gone to one of Baez's concerts together. As his relationship with Jasinski flamed out, Jobs began getting more serious with Baez. He was twenty-seven and Baez was forty-one, but for a few years they had a romance. "It turned into a serious relationship between two accidental friends who became lovers," Jobs recalled in a somewhat wistful tone.

Elizabeth Holmes, Jobs's friend from Reed College, believed that one of the reasons he went out with Baez—other than the fact that she was beautiful and funny and talented—was that she had once been the lover of Bob Dylan. "Steve loved that connection to Dylan," she later said. Baez and Dylan had been lovers in the early 1960s, and they toured as friends after that, including with the Rolling Thunder Revue in 1975. (Jobs had the bootlegs of those concerts.)

When she met Jobs, Baez had a fourteen-year-old son, Gabriel, from her marriage to the antiwar activist David Harris. At lunch she told Jobs she was trying to teach Gabe how to type. "You mean on a typewriter?" Jobs asked. When she said yes, he replied, "But a typewriter is antiquated."

"If a typewriter is antiquated, what does that make me?" she asked. There was an awkward pause. As Baez later told me, "As soon as I said it, I realized the answer was so obvious. The question just hung in the air. I was just horrified."

Much to the astonishment of the Macintosh team, Jobs burst into the office one day with Baez and showed her the prototype of the Macintosh. They were dumbfounded that he would reveal the computer to an outsider, given his obsession with secrecy, but they were even more blown away to be in the presence of Joan Baez. He gave Gabe an Apple II, and he later gave Baez a Macintosh. On visits Jobs would show off the features he liked. "He was sweet and patient, but he was so advanced in his knowledge that he had trouble teaching me," she recalled.

He was a sudden multimillionaire; she was a world-famous celebrity, but sweetly down-to-earth and not all that wealthy. She didn't know what to make of him then, and still found him puzzling when she talked about him almost thirty years later. At one dinner early in their relationship, Jobs started talking about Ralph Lauren and his Polo Shop, which she admitted she had never visited. "There's a beautiful red dress there that would be perfect for you," he said, and then drove her to the store in the Stanford Mall. Baez recalled, "I said to myself, far out, terrific, I'm with one of the world's richest men and he wants me to have this beautiful dress." When they got to the store, Jobs bought a handful of shirts for himself and showed her the red dress. "You ought to buy it," he said. She was a little surprised, and told him she couldn't really afford it. He said nothing, and they left. "Wouldn't you think if someone had talked like that the whole evening, that they were going to get it for you?" she asked me, seeming genuinely puzzled about the incident. "The mystery of the red dress is in your hands. I felt a bit strange about it." He would give her computers, but not a dress, and when he brought her flowers he made sure to say they were left over from an event in the office. "He was both romantic and afraid to be romantic," she said.

When he was working on the NeXT computer, he went to Baez's house in Woodside to show her how well it could produce music. "He had it play a Brahms quartet, and he told me eventually computers would sound better than humans playing it, even get the innuendo and the cadences better," Baez recalled. She was revolted by the idea. "He was working himself up into a fervor of delight while I was shrinking into a rage and thinking, How could you defile music like that?"

Jobs would confide in Debi Coleman and Joanna Hoffman about his relationship with Baez and worry about whether he could marry someone who had a teenage son and was probably past the point of wanting to have more children. "At times he would belittle her as being an 'issues' singer and not a true 'political' singer like Dylan," said Hoffman. "She was a strong woman, and he wanted to show he was in control. Plus, he always said he wanted to have a family, and with her he knew that he wouldn't."

And so, after about three years, they ended their romance and drifted into becoming just friends. "I thought I was in love with her, but I really just liked her a lot," he later said. "We weren't destined to be together. I wanted kids, and she didn't want any more." In her 1989 memoir, Baez wrote about her breakup with her husband and why she never remarried: "I belonged alone, which is how I have been since then, with occasional interruptions that are mostly picnics." She did add a nice acknowledgment at the end of the book to "Steve Jobs for forcing me to use a word processor by putting one in my kitchen."

Finding Joanne and Mona

When Jobs was thirty-one, a year after his ouster from Apple, his mother Clara, who was a smoker, was stricken with lung cancer. He spent time by her deathbed, talking to her in ways he had rarely done in the past and asking some questions he had refrained from raising before. "When you and Dad got married, were you a virgin?" he asked. It was hard for her to talk, but she forced a smile. That's when she told him that she had been married before, to a man who never made it back from the war. She also filled in some of the details of how she and Paul Jobs had come to adopt him.

Soon after that, Jobs succeeded in tracking down the woman who had put him up for adoption. His quiet quest to find her had begun in the early 1980s, when he hired a detective who had failed to come up with anything. Then Jobs noticed the name of a San Francisco doctor on his birth certificate. "He was in the phone book, so I gave him a call," Jobs recalled. The doctor was no help. He claimed that his records had been destroyed in a fire. That was not true. In fact, right after Jobs called, the doctor wrote a letter, sealed it in an envelope, and wrote on it, "To be delivered to Steve Jobs on my death." When he died a short time later, his widow sent the letter to Jobs. In it, the doctor explained that his mother had been an unmarried graduate student from Wisconsin named Joanne Schieble.

It took another few weeks and the work of another detective to track her down. After giving him up, Joanne had married his biological father, Abdulfattah "John" Jandali, and they had another child, Mona. Jandali abandoned them five years later, and Joanne married a colorful ice-skating instructor, George Simpson. That marriage didn't last long either, and in 1970 she began a meandering journey that took her and Mona (both of them now using the last name Simpson) to Los Angeles.

Jobs had been reluctant to let Paul and Clara, whom he considered his real parents, know about his search for his birth mother. With a sensitivity that was unusual for him, and which showed the deep affection he felt for his parents, he worried that they might be offended. So he never contacted Joanne Simpson until after Clara Jobs died in early 1986. "I never wanted them to feel like I didn't consider them my parents, because they were totally my parents," he recalled. "I loved them so much that I never wanted them to know of my search, and I even had reporters keep it quiet when any of them found out." When Clara died, he decided to tell Paul Jobs, who was perfectly comfortable and said he didn't mind at all if Steve made contact with his biological mother.

So one day Jobs called Joanne Simpson, said who he was, and arranged to come down to Los Angeles to meet her. He later claimed it was mainly out of curiosity. "I believe in environment more than heredity in determining your traits, but still you have to wonder a little about your biological roots," he said. He also wanted to reassure Joanne that what she had done was all right. "I wanted to meet my biological mother mostly to see if she was okay and to thank her, because I'm glad I didn't end up as an abortion. She was twenty-three and she went through a lot to have me."

Joanne was overcome with emotion when Jobs arrived at her Los Angeles house. She knew he was famous and rich, but she wasn't exactly sure why. She immediately began to pour out her emotions. She had been pressured to sign the papers putting him up for adoption, she said, and did so only when told that he was happy in the house of his new parents. She had always missed him and suffered about what she had done. She apologized over and over, even as Jobs kept reassuring her that he understood, and that things had turned out just fine.

Once she calmed down, she told Jobs that he had a full sister, Mona Simpson, who was then an aspiring novelist in Manhattan. She had never told Mona that she had a brother, and that day she broke the news, or at least part of it, by telephone. "You have a brother, and he's wonderful, and he's famous, and I'm going to bring him to New York so you can meet him," she said. Mona was in the throes of finishing a novel about her mother and their peregrination from Wisconsin to Los

Angeles, *Anywhere but Here.* Those who've read it will not be surprised that Joanne was somewhat quirky in the way she imparted to Mona the news about her brother. She refused to say who he was—only that he had been poor, had gotten rich, was good-looking and famous, had long dark hair, and lived in California. Mona then worked at the *Paris Review,* George Plimpton's literary journal housed on the ground floor of his townhouse near Manhattan's East River. She and her coworkers began a guessing game on who her brother might be. John Travolta? That was one of the favorite guesses. Other actors were also hot prospects. At one point someone did toss out a guess that "maybe it's one of those guys who started Apple computer," but no one could recall their names.

The meeting occurred in the lobby of the St. Regis Hotel. "He was totally straightforward and lovely, just a normal and sweet guy," Mona recalled. They all sat and talked for a few minutes, then he took his sister for a long walk, just the two of them. Jobs was thrilled to find that he had a sibling who was so similar to him. They were both intense in their artistry, observant of their surroundings, and sensitive yet strong-willed. When they went to dinner together, they noticed the same architectural details and talked about them excitedly afterward. "My sister's a writer!" he exulted to colleagues at Apple when he found out.

When Plimpton threw a party for *Anywhere but Here* in late 1986, Jobs flew to New York to accompany Mona to it. They grew increasingly close, though their friendship had the complexities that might be expected, considering who they were and how they had come together. "Mona was not completely thrilled at first to have me in her life and have her mother so emotionally affectionate toward me," he later said. "As we got to know each other, we became really good friends, and she is my family. I don't know what I'd do without her. I can't imagine a better sister. My adopted sister, Patty, and I were never close." Mona likewise developed a deep affection for him, and at times could be very protective, although she would later write an edgy novel about him, *A Regular Guy,* that described his quirks with discomforting accuracy.

One of the few things they would argue about was her clothes. She dressed like a struggling novelist, and he would berate her for not wearing clothes that were "fetching enough." At one point his comments so annoyed her that she wrote him a letter: "I am a young writer, and this is my life, and I'm not trying to be a model anyway." He didn't answer. But shortly after, a box arrived from the store of Issey Miyake, the Japanese fashion designer whose stark and technology-influenced style made him one of Jobs's favorites. "He'd gone shopping for me," she later said, "and he'd picked out great things, exactly my size, in flattering colors." There was one pantsuit that he had particularly liked, and the shipment included three of them, all identical. "I still remember those first suits I sent Mona," he said. "They were linen pants and tops in a pale grayish green that looked beautiful with her reddish hair."

The Lost Father

In the meantime, Mona Simpson had been trying to track down their father, who had wandered off when she was five. Through Ken Auletta and Nick Pileggi, prominent Manhattan writers, she was introduced to a retired New York cop who had formed his own detective agency. "I paid him what little money I had," Simpson recalled, but the search was unsuccessful. Then she met another private eye in California, who was able to find an address for Abdulfattah Jandali in Sacramento through a Department of Motor Vehicles search. Simpson told her brother and flew out from New York to see the man who was apparently their father.

Jobs had no interest in meeting him. "He didn't treat me well," he later explained. "I don't hold anything against him—I'm happy to be alive. But what bothers me most is that he didn't treat Mona well. He abandoned her." Jobs himself had abandoned his own illegitimate daughter, Lisa, and now was trying to restore their relationship, but that complexity did not soften his feelings toward Jandali. Simpson went to Sacramento alone.

"It was very intense," Simpson recalled. She found her father working in a small restaurant. He seemed happy to see her, yet oddly passive about the entire situation. They talked for a few hours, and he recounted that, after he left Wisconsin, he had drifted away from teaching and gotten into the restaurant business.

Jobs had asked Simpson not to mention him, so she didn't. But at one point her father casually remarked that he and her mother had had another baby, a boy, before she had been born. "What happened to him?" she asked. He replied, "We'll never see that baby again. That baby's gone." Simpson recoiled but said nothing.

An even more astonishing revelation occurred when Jandali was describing the previous restaurants that he had run. There had been some nice ones, he insisted, fancier than the Sacramento joint they were then sitting in. He told her, somewhat emotionally, that he wished she could have seen him when he was managing a Mediterranean restaurant north of San Jose. "That was a wonderful place," he said. "All of the successful technology people used to come there. *Even Steve Jobs.*" Simpson was stunned. "Oh, yeah, he used to come in, and he was a sweet guy, and a big tipper," her father added. Mona was able to refrain from blurting out, *Steve Jobs is your son!*

When the visit was over, she called Jobs surreptitiously from the pay phone at the restaurant and arranged to meet him at the Espresso Roma café in Berkeley. Adding to the personal and family drama, he brought along Lisa, now in grade school, who lived with her mother, Chrisann. When they all arrived at the café, it was close to 10 p.m., and Simpson poured forth the tale. Jobs was understandably astonished when she mentioned the restaurant near San Jose. He could recall being there and even meeting the man who was his biological father. "It was amazing," he later said of the revelation. "I had been to that restaurant a few times, and I remember meeting the owner. He was Syrian. Balding. We shook hands."

Nevertheless Jobs still had no desire to see him. "I was a wealthy man by then, and I didn't trust him not to try to blackmail me or go to the press about it," he recalled. "I asked Mona not to tell him about me."

She never did, but years later Jandali saw his relationship to Jobs mentioned online. (A blogger noticed that Simpson had listed Jandali as her father in a reference book and figured out he must be Jobs's father as well.) By then Jandali was married for a fourth time and working as a food and beverage manager at the Boomtown Resort and Casino just west of Reno, Nevada. When he brought his new wife, Roscille, to visit

Simpson in 2006, he raised the topic. "What is this thing about Steve Jobs?" he asked. She confirmed the story, but added that she thought Jobs had no interest in meeting him. Jandali seemed to accept that. "My father is thoughtful and a beautiful storyteller, but he is very, very passive," Simpson said. "He never contacted Steve."

Simpson turned her search for Jandali into a basis for her second novel, *The Lost Father,* published in 1992. (Jobs convinced Paul Rand, the designer who did the NeXT logo, to design the cover, but according to Simpson, "It was God-awful and we never used it.") She also tracked down various members of the Jandali family, in Homs and in America, and in 2011 was writing a novel about her Syrian roots. The Syrian ambassador in Washington threw a dinner for her that included a cousin and his wife who then lived in Florida and had flown up for the occasion.

Simpson assumed that Jobs would eventually meet Jandali, but as time went on he showed even less interest. In 2010, when Jobs and his son, Reed, went to a birthday dinner for Simpson at her Los Angeles house, Reed spent some time looking at pictures of his biological grandfather, but Jobs ignored them. Nor did he seem to care about his Syrian heritage. When the Middle East would come up in conversation, the topic did not engage him or evoke his typical strong opinions, even after Syria was swept up in the 2011 Arab Spring uprisings. "I don't think anybody really knows what we should be doing over there," he said when I asked whether the Obama administration should be intervening more in Egypt, Libya, and Syria. "You're fucked if you do and you're fucked if you don't."

Jobs did retain a friendly relationship with his biological mother, Joanne Simpson. Over the years she and Mona would often spend Christmas at Jobs's house. The visits could be sweet, but also emotionally draining. Joanne would sometimes break into tears, say how much she had loved him, and apologize for giving him up. It turned out all right, Jobs would reassure her. As he told her one Christmas, "Don't worry. I had a great childhood. I turned out okay."

Lisa

Lisa Brennan, however, did not have a great childhood. When she was young, her father almost never came to see her. "I didn't want to be a father, so I wasn't," Jobs later said, with only a touch of remorse in his voice. Yet occasionally he felt the tug. One day, when Lisa was three, Jobs was driving near the house he had bought for her and Chrisann, and he decided to stop. Lisa didn't know who he was. He sat on the doorstep, not venturing inside, and talked to Chrisann. The scene was repeated once or twice a year. Jobs would come by unannounced, talk a little bit about Lisa's school options or other issues, then drive off in his Mercedes.

But by the time Lisa turned eight, in 1986, the visits were occurring more frequently. Jobs was no longer immersed in the grueling push to create the Macintosh or in the subsequent power struggles with Sculley. He was at NeXT, which was calmer, friendlier, and headquartered in Palo Alto, near where Chrisann and Lisa lived. In addition, by the time she was in third grade, it was clear that Lisa was a smart and artistic kid, who had already been singled out by her teachers for her writing ability. She was spunky and high-spirited and had a little of her father's defiant attitude. She also looked a bit like him, with arched eyebrows and a faintly Middle Eastern angularity. One day, to the surprise of his colleagues, he brought her by the office. As she turned cartwheels in the corridor, she squealed, "Look at me!"

Avie Tevanian, a lanky and gregarious engineer at NeXT who had become Jobs's friend, remembers that every now and then, when they were going out to dinner, they would stop by Chrisann's house to pick up Lisa. "He was very sweet to her," Tevanian recalled. "He was a vegetarian, and so was Chrisann, but she wasn't. He was fine with that. He suggested she order chicken, and she did."

Eating chicken became her little indulgence as she shuttled between two parents who were vegetarians with a spiritual regard for natural foods. "We bought our groceries—our puntarella, quinoa, celeriac, carob-covered nuts—in yeasty-smelling stores where the women didn't dye their hair," she later wrote about her time with her mother. "But we sometimes tasted foreign treats. A few times we bought a hot, seasoned chicken from a gourmet shop with rows and rows of chickens turning on spits, and ate it in the car from the foil-lined paper bag with our fingers." Her father, whose dietary fixations came in fanatic waves, was more fastidious about what he ate. She watched him spit out a mouthful of soup one day after learning that it contained butter. After loosening up a bit while at Apple, he was back to being a strict vegan. Even at a young age Lisa began to realize his diet obsessions reflected a life philosophy, one in which asceticism and minimalism could heighten subsequent sensations. "He believed that great harvests came from arid sources, pleasure from restraint," she noted. "He knew the equations that most people didn't know: Things led to their opposites."

In a similar way, the absence and coldness of her father made his occasional moments of warmth so much more intensely gratifying. "I didn't live with him, but he would stop by our house some days, a deity among us for a few tingling moments or hours," she recalled. Lisa soon became interesting enough that he would take walks with her. He would also go rollerblading with her on the quiet streets of old Palo Alto, often stopping at the houses of Joanna Hoffman and Andy Hertzfeld. The first time he brought her around to see Hoffman, he just knocked on the door and announced, "This is Lisa." Hoffman knew right away. "It was obvious she was his daughter," she told me. "Nobody has that jaw. It's a signature jaw." Hoffman, who suffered from not knowing her own divorced father until she was ten, encouraged Jobs to be a better father. He followed her advice, and later thanked her for it.

Once he took Lisa on a business trip to Tokyo, and they stayed at the sleek and businesslike Okura Hotel. At the elegant downstairs sushi bar, Jobs ordered large trays of unagi sushi, a dish he loved so much that he allowed the warm cooked eel to pass muster as vegetarian. The pieces were coated with fine salt or a thin sweet sauce, and Lisa remembered later how they dissolved in her mouth. So, too, did the distance between them. As she later wrote, "It was the first time I'd felt, with him, so relaxed and content, over those trays of meat; the excess, the permission and warmth after the cold salads, meant a once inaccessible space had opened. He was less rigid with himself, even human under the great ceilings with the little chairs, with the meat, and me."

But it was not always sweetness and light. Jobs was as mercurial with Lisa as he was with almost everyone, cycling between embrace and abandonment. On one visit he would be playful; on the next he would be cold; often he was not there at all. "She was always unsure of their relationship," according to Hertzfeld. "I went to a birthday party of hers, and Steve was supposed to come, and he was very, very, late. She got extremely anxious and disappointed. But when he finally did come, she totally lit up."

Lisa learned to be temperamental in return. Over the years their relationship would be a roller coaster, with each of the low points elongated by their shared stubbornness. After a falling-out, they could go for months not speaking to each other. Neither one was good at reaching out, apologizing, or making the effort to heal, even when he was wrestling with repeated health problems. One day in the fall of 2010 he was wistfully going through a box of old snapshots with me, and paused over one that showed him visiting Lisa when she was young. "I probably didn't go over there enough," he said. Since he had not spoken to her all that year, I asked if he might want to reach out to her with a call or email. He looked at me blankly for a moment, then went back to riffling through other old photographs.

The Romantic

When it came to women, Jobs could be deeply romantic. He tended to fall in love dramatically, share with friends every up and down of a relationship, and pine in public whenever he was away from his current girlfriend. In the summer of 1983 he went to a small dinner party in Silicon Valley with Joan Baez and sat next to an undergraduate at the University of Pennsylvania named Jennifer Egan, who was not quite sure who he was. By then he and Baez had realized that they weren't destined to be forever young together, and Jobs found himself fascinated by Egan, who was working on a San Francisco weekly during her summer vacation. He tracked her down, gave her a call, and took her to Café Jacqueline, a little bistro near Telegraph Hill that specialized in vegetarian soufflés.

They dated for a year, and Jobs often flew east to visit her. At a Boston Macworld event, he told a large gathering how much in love he was and thus needed to rush out to catch a plane for Philadelphia to see his girlfriend. The audience was enchanted. When he was visiting New York, she would take the train up to stay with him at the Carlyle or at Jay Chiat's Upper East Side apartment, and they would eat at Café Luxembourg, visit (repeatedly) the apartment in the San Remo he was planning to remodel, and go to movies or (once at least) the opera.

He and Egan also spoke for hours on the phone many nights. One topic they wrestled with was his belief, which came from his Buddhist studies, that it was important to avoid attachment to material objects. Our consumer desires are unhealthy, he told her, and to attain enlightenment you need to develop a life of nonattachment and nonmaterialism. He even sent her a tape of Kobun Chino, his Zen teacher, lecturing about the problems caused by craving and obtaining things. Egan pushed back. Wasn't he defying that philosophy, she asked, by making computers and other products that people coveted? "He was irritated by the dichotomy, and we had exuberant debates about it," Egan recalled.

In the end Jobs's pride in the objects he made overcame his sensibility that people should eschew being attached to such possessions. When the Macintosh came out in January 1984, Egan was staying at her mother's apartment in San Francisco during her winter break from Penn. Her mother's dinner guests were astonished one night when Steve Jobs—suddenly very famous—appeared at the door carrying a freshly boxed Macintosh and proceeded to Egan's bedroom to set it up.

Jobs told Egan, as he had a few other friends, about his premonition that he would not live a long life. That was why he was driven and impatient, he confided. "He felt a sense of urgency about all he wanted to get done," Egan later said. Their relationship tapered off by the fall of 1984, when Egan made it clear that she was still far too young to think of getting married.

Shortly after that, just as the turmoil with Sculley was beginning to build at Apple in early 1985, Jobs was heading to a meeting when he stopped at the office of a guy who was working with the Apple Foundation, which helped get computers to nonprofit organizations. Sitting in his office was a lithe, very blond woman who combined a hippie aura of natural purity with the solid sensibilities of a computer consultant. Her name was Tina Redse. "She was the most beautiful woman I'd ever seen," Jobs recalled.

He called her the next day and asked her to dinner. She said no, that she was living with a boyfriend. A few days later he took her on a walk to a nearby park and again asked her out, and this time she told her boyfriend that she wanted to go. She was very honest and open. After dinner she started to cry because she knew her life was about to be disrupted. And it was. Within a few months she had moved into the unfurnished mansion in Woodside. "She was the first person I was truly in love with," Jobs later said. "We had a very deep connection. I don't know that anyone will ever understand me better than she did."

Redse came from a troubled family, and Jobs shared with her his own pain about being put up for adoption. "We were both wounded from our childhood," Redse recalled. "He said to me that we were misfits, which is why we belonged together." They were physically passionate and prone to public displays of affection; their make-out sessions in the NeXT lobby are well remembered by employees. So too were their fights, which occurred at movie theaters and in front of visitors to Woodside. Yet he constantly praised her purity and naturalness. As the well-grounded Joanna Hoffman pointed out when discussing Jobs's infatuation with the otherworldly Redse, "Steve had a tendency to look at vulnerabilities and neuroses and turn them into spiritual attributes."

When he was being eased out at Apple in 1985, Redse traveled with him in Europe, where he was salving his wounds. Standing on a bridge over the Seine one evening, they bandied about the idea, more romantic than serious, of just staying in France, maybe settling down, perhaps indefinitely. Redse was eager, but Jobs didn't want to. He was burned but still ambitious. "I am a reflection of what I do," he told her. She recalled their Paris moment in a poignant email she sent to him twenty-five years later, after they had gone their separate ways but retained their spiritual connection:

> We were on a bridge in Paris in the summer of 1985. It was overcast. We leaned against the smooth stone rail and stared at the green water rolling on below. Your world had cleaved and then it paused, waiting to rearrange itself around whatever you chose next. I wanted to run away from what had come before. I tried to convince you to begin a new life with me in Paris, to shed our former selves and let something else course through us. I wanted us to crawl through that black chasm of your broken world and emerge, anonymous and new, in simple lives where I could cook you simple dinners and we could be together every day, like children playing a sweet game with no purpose save the game itself. I like to think you considered it before you laughed and said "What could I do? I've made myself unemployable." I like to think that in that moment's hesitation before our bold futures reclaimed us, we lived that simple life together all the way into our peaceful old ages, with a brood of grandchildren around us on a farm in the south of France, quietly going about our days, warm and complete like loaves of fresh bread, our small world filled with the aroma of patience and familiarity.

The relationship lurched up and down for five years. Redse hated living in his sparsely furnished Woodside house. Jobs had hired a hip young couple, who had once worked at Chez Panisse, as housekeepers and vegetarian cooks, and they made her feel like an interloper. She would occasionally move out to an apartment of her own in Palo Alto, especially after one of her torrential arguments with Jobs. "Neglect is a form of abuse," she once scrawled on the wall of the hallway to their bedroom. She was entranced by him, but she was also baffled by how uncaring he could be. She would later recall how incredibly painful it was to be in love with someone so self-centered. Caring deeply about someone who seemed incapable of caring was a particular kind of hell that she wouldn't wish on anyone, she said.

They were different in so many ways. "On the spectrum of cruel to kind, they are close to the opposite poles," Hertzfeld later said. Redse's kindness was manifest in ways large and small; she always gave money to street people, she volunteered to help those who (like her father) were afflicted with mental illness, and she took care to make Lisa and even Chrisann feel comfortable with her. More than anyone, she helped persuade Jobs to spend more time with Lisa. But she lacked Jobs's ambition and drive. The ethereal quality that made her seem so spiritual to Jobs also made it hard for them to stay on the same wavelength. "Their relationship was incredibly tempestuous," said Hertzfeld. "Because of both of their characters, they would have lots and lots of fights."

They also had a basic philosophical difference about whether aesthetic tastes were fundamentally individual, as Redse believed, or universal and could be taught, as Jobs believed. She accused him of being too influenced by the Bauhaus movement. "Steve believed it was our job to teach people aesthetics, to teach people what they should like," she recalled. "I don't share that perspective. I believe when we listen deeply, both within ourselves and to each other, we are able to allow what's innate and true to emerge."

When they were together for a long stretch, things did not work out well. But when they were apart, Jobs would pine for her. Finally, in the summer of 1989, he asked her to marry him. She couldn't do it. It would drive her crazy, she told friends. She had grown up in a volatile household, and her relationship with Jobs bore too many similarities to that environment. They were opposites who attracted, she said, but the combination was too combustible. "I could not have been a good wife to 'Steve Jobs,' the icon," she later explained. "I would have sucked at it on many levels. In our personal interactions, I couldn't abide his unkindness. I didn't want to hurt him, yet I didn't want to stand by and watch him hurt other people either. It was painful and exhausting."

After they broke up, Redse helped found OpenMind, a mental health resource network in California. She happened to read in a psychiatric manual about Narcissistic Personality Disorder and decided that Jobs perfectly met the criteria. "It fits so well and explained so much of what we had struggled with, that I realized expecting him to be nicer or less self-centered was like expecting a blind man to see," she said. "It also explained some of the choices he'd made about his daughter Lisa at that time. I think the issue is empathy—the capacity for empathy is lacking."

Redse later married, had two children, and then divorced. Every now and then Jobs would openly pine for her, even after he was happily married. And when he began his battle with cancer, she got in touch again to give support. She became very emotional whenever she recalled their relationship. "Though our values clashed and made it impossible for us to have the relationship we once hoped for," she told me, "the care and love I felt for him decades ago has continued." Similarly, Jobs suddenly started to cry one afternoon as he sat in his living room reminiscing about her. "She was one of the purest people I've ever known," he said, tears rolling down his cheeks. "There was something spiritual about her and spiritual about the connection we had." He said he always regretted that they could not make it work, and he knew that she had such regrets as well. But it was not meant to be. On that they both agreed.

CHAPTER TWENTY-ONE

FAMILY MAN

At Home with the Jobs Clan

With Laurene Powell, 1991

Laurene Powell

By this point, based on his dating history, a matchmaker could have put together a composite sketch of the woman who would be right for Jobs. Smart, yet unpretentious. Tough enough to stand up to him, yet Zen-like enough to rise above turmoil. Well-educated and independent, yet ready to make accommodations for him and a family. Down-to-earth, but with a touch of the ethereal. Savvy enough to know how to manage him, but secure enough to not always need to.

And it wouldn't hurt to be a beautiful, lanky blonde with an easygoing sense of humor who liked organic vegetarian food. In October 1989, after his split with Tina Redse, just such a woman walked into his life.

More specifically, just such a woman walked into his classroom. Jobs had agreed to give one of the "View from the Top" lectures at the Stanford Business School one Thursday evening. Laurene Powell was a new graduate student at the business school, and a guy in her class talked her into going to the lecture. They arrived late and all the seats were taken, so they sat in the aisle. When an usher told them they had to move, Powell took her friend down to the front row and commandeered two of the reserved seats there. Jobs was led to the one next to her when he arrived. "I looked to my right, and there was a beautiful girl there, so we started chatting while I was waiting to be introduced," Jobs recalled. They bantered a bit, and Laurene joked that she was sitting there because she had won a raffle, and the prize was that he got to take her to dinner. "He was so adorable," she later said.

After the speech Jobs hung around on the edge of the stage chatting with students. He watched Powell leave, then come back and stand at the edge of the crowd, then leave again. He bolted out after her, brushing past the dean, who was trying to grab him for a conversation. After catching up with her in the parking lot, he said, "Excuse me, wasn't there something about a raffle you won, that I'm supposed to take you to dinner?" She laughed. "How about Saturday?" he asked. She agreed and wrote down her number. Jobs headed to his car to drive up to the Thomas Fogarty winery in the Santa Cruz mountains above Woodside, where the NeXT education sales group was holding a dinner. But he suddenly stopped and turned around. "I thought, wow, I'd rather have dinner with her than the education group, so I ran back to her car and said 'How about dinner *tonight*?' " She said yes. It was a beautiful fall evening, and they walked into Palo Alto to a funky vegetarian restaurant, St. Michael's Alley, and ended up staying there for four hours. "We've been together ever since," he said.

Avie Tevanian was sitting at the winery restaurant waiting with the rest of the NeXT education group. "Steve was sometimes unreliable, but when I talked to him I realized that something special had come up," he said. As soon as Powell got home, after midnight, she

new operating system. "Amelio paid a lot for NeXT, and let's be frank, the NeXT OS was never really used." Instead the purchase ended up bringing in Avie Tevanian, who could help the existing Apple operating system evolve so that it eventually incorporated the kernel of the NeXT technology. Gates knew that the deal was destined to bring Jobs back to power. "But that was a twist of fate," he said. "What they ended up buying was a guy who most people would not have predicted would be a great CEO, because he didn't have much experience at it, but he was a brilliant guy with great design taste and great engineering taste. He suppressed his craziness enough to get himself appointed interim CEO."

Despite what both Ellison and Gates believed, Jobs had deeply conflicted feelings about whether he wanted to return to an active role at Apple, at least while Amelio was there. A few days before the NeXT purchase was due to be announced, Amelio asked Jobs to rejoin Apple full-time and take charge of operating system development. Jobs, however, kept deflecting Amelio's request.

Finally, on the day that he was scheduled to make the big announcement, Amelio called Jobs in. He needed an answer. "Steve, do you just want to take your money and leave?" Amelio asked. "It's okay if that's what you want." Jobs did not answer; he just stared. "Do you want to be on the payroll? An advisor?" Again Jobs stayed silent. Amelio went out and grabbed Jobs's lawyer, Larry Sonsini, and asked what he thought Jobs wanted. "Beats me," Sonsini said. So Amelio went back behind closed doors with Jobs and gave it one more try. "Steve, what's on your mind? What are you feeling? Please, I need a decision now."

"I didn't get any sleep last night," Jobs replied.

"Why? What's the problem?"

"I was thinking about all the things that need to be done and about the deal we're making, and it's all running together for me. I'm really tired now and not thinking clearly. I just don't want to be asked any more questions."

Amelio said that wasn't possible. He needed to say something.

Finally Jobs answered, "Look, if you have to tell them something, just say advisor to the chairman." And that is what Amelio did.

The announcement was made that evening—December 20, 1996—in front of 250 cheering employees at Apple headquarters. Amelio did as Jobs had requested and described his new role as merely that of a part-time advisor. Instead of appearing from the wings of the stage, Jobs walked in from the rear of the auditorium and ambled down the aisle. Amelio had told the gathering that Jobs would be too tired to say anything, but by then he had been energized by the applause. "I'm very excited," Jobs said. "I'm looking forward to get to reknow some old colleagues." Louise Kehoe of the *Financial Times* came up to the stage afterward and asked Jobs, sounding almost accusatory, whether he was going to end up taking over Apple. "Oh no, Louise," he said. "There are a lot of other things going on in my life now. I have a family. I am involved at Pixar. My time is limited, but I hope I can share some ideas."

The next day Jobs drove to Pixar. He had fallen increasingly in love with the place, and he wanted to let the crew there know he was still going to be president and deeply involved. But the Pixar people were happy to see him go back to Apple part-time; a little less of Jobs's focus would be a good thing. He was useful when there were big negotiations, but he could be dangerous when he had too much time on his hands. When he arrived at Pixar that day, he went to Lasseter's office and explained that even just being an advisor at Apple would take up a lot of his time. He said he wanted Lasseter's blessing. "I keep thinking about all the time away from my family this will cause, and the time away from the other family at Pixar," Jobs said. "But the only reason I want to do it is that the world will be a better place with Apple in it."

Lasseter smiled gently. "You have my blessing," he said.

CHAPTER TWENTY-FOUR

THE RESTORATION

The Loser Now Will Be Later to Win

Amelio calling up Wozniak as Jobs hangs back, 1997

Hovering Backstage

"It's rare that you see an artist in his thirties or forties able to really contribute something amazing," Jobs declared as he was about to turn thirty.

That held true for Jobs in his thirties, during the decade that began with his ouster from Apple in 1985. But after turning forty in 1995, he flourished. *Toy Story* was released that year, and the following year Apple's purchase of NeXT offered him reentry into the company he had founded. In returning to Apple, Jobs would show that even people over forty could be great innovators. Having transformed personal computers in his twenties, he would now help to do the same for music players, the recording industry's business model, mobile phones, apps, tablet computers, books, and journalism.

He had told Larry Ellison that his return strategy was to sell NeXT to Apple, get appointed to the board, and be there ready when CEO Gil Amelio stumbled. Ellison may have been baffled when Jobs insisted that he was not motivated by money, but it was partly true. He had neither Ellison's conspicuous consumption needs nor Gates's philanthropic impulses nor the competitive urge to see how high on the *Forbes* list he could get. Instead his ego needs and personal drives led him to seek fulfillment by creating a legacy that would awe people. A dual legacy, actually: building innovative products and building a lasting company. He wanted to be in the pantheon with, indeed a notch above, people like Edwin Land, Bill Hewlett, and David Packard. And the best way to achieve all this was to return to Apple and reclaim his kingdom.

And yet when the cup of power neared his lips, he became strangely hesitant, reluctant, perhaps coy.

He returned to Apple officially in January 1997 as a part-time advisor, as he had told Amelio he would. He began to assert himself in some personnel areas, especially in protecting his people who had made the transition from NeXT. But in most other ways he was unusually passive. The decision not to ask him to join the board offended him, and he felt demeaned by the suggestion that he run the company's operating system division. Amelio was thus able to create a situation in which Jobs was both inside the tent and outside the tent, which was not a prescription for tranquillity. Jobs later recalled:

> Gil didn't want me around. And I thought he was a bozo. I knew that before I sold him the company. I thought I was just going to be trotted out now and then for events like Macworld, mainly for show. That was fine, because I was working at Pixar. I rented an office in downtown Palo Alto where I could work a few days a week, and I drove up to Pixar for one or two days. It was a nice life. I could slow down, spend time with my family.

Jobs was, in fact, trotted out for Macworld right at the beginning of January, and this reaffirmed his opinion that Amelio was a bozo. Close to four thousand of the faithful fought for seats in the ballroom of the San Francisco Marriott to hear Amelio's keynote address. He was introduced by the actor Jeff Goldblum. "I play an expert in chaos theory in *The Lost World: Jurassic Park*," he said. "I figure that will qualify me to speak at an Apple event." He then turned it over to Amelio, who came onstage wearing a flashy sports jacket and a banded-collar shirt buttoned tight at the neck, "looking like a Vegas comic," the *Wall Street Journal* reporter Jim Carlton noted, or in the words of the technology writer Michael Malone, "looking exactly like your newly divorced uncle on his first date."

The bigger problem was that Amelio had gone on vacation, gotten into a nasty tussle with his speechwriters, and refused to rehearse. When Jobs arrived backstage, he was upset by the chaos, and he seethed as Amelio stood on the podium bumbling through a disjointed and endless presentation. Amelio was unfamiliar with the talking points that popped up on his teleprompter and soon was trying to wing his presentation. Repeatedly he lost his train of thought. After more than an hour, the audience was aghast. There were a few welcome breaks, such as when he brought out the singer Peter Gabriel to demonstrate a new music program. He also pointed out Muhammad Ali in the first row; the champ was supposed to come onstage to promote a website about Parkinson's disease, but Amelio never invited him up or explained why he was there.

Amelio rambled for more than two hours before he finally called onstage the person everyone was waiting to cheer. "Jobs, exuding confidence, style, and sheer magnetism, was the antithesis of the fumbling Amelio as he strode onstage," Carlton wrote. "The return of Elvis would not have provoked a bigger sensation." The crowd jumped to its feet and gave him a raucous ovation for more than a minute. The wilderness decade was over. Finally Jobs waved for silence and cut to the heart of the challenge. "We've got to get the spark back," he said. "The Mac didn't progress much in ten years. So Windows caught up. So we have to come up with an OS that's even better."

Jobs's pep talk could have been a redeeming finale to Amelio's frightening performance. Unfortunately Amelio came back onstage and resumed his ramblings for another hour. Finally, more than three hours after the show began, Amelio brought it to a close by calling Jobs back onstage and then, in a surprise, bringing up Steve Wozniak as well. Again there was pandemonium. But Jobs was clearly annoyed. He avoided engaging in a triumphant trio scene, arms in the air. Instead he slowly edged offstage. "He ruthlessly ruined the closing moment I had planned," Amelio later complained. "His own feelings were more important than good press for Apple." It was only seven days into the new year for Apple, and already it was clear that the center would not hold.

Jobs immediately put people he trusted into the top ranks at Apple. "I wanted to make sure the really good people who came in from NeXT didn't get knifed in the back by the less competent people who were then in senior jobs at Apple," he recalled. Ellen Hancock, who had favored choosing Sun's Solaris over NeXT, was on the top of his bozo list, especially when she continued to want to use the kernel of Solaris in the new Apple operating system. In response to a reporter's question about the role Jobs would play in making that decision, she answered curtly, "None." She was wrong. Jobs's first move was to make sure that two of his friends from NeXT took over her duties.

To head software engineering, he tapped his buddy Avie Tevanian. To run the hardware side, he called on Jon Rubinstein, who had done the same at NeXT back when it had a hardware division. Rubinstein was vacationing on the Isle of Skye when Jobs called him. "Apple needs some help," he said. "Do you want to come aboard?" Rubinstein did. He got back in time to attend Macworld and see Amelio bomb onstage. Things were worse than he expected. He and Tevanian would exchange glances at meetings as if they had stumbled into an insane asylum, with people making deluded assertions while Amelio sat at the end of the table in a seeming stupor.

Jobs did not come into the office regularly, but he was on the phone to Amelio often. Once he had succeeded in making sure that Tevanian, Rubinstein, and others he trusted were given top positions, he turned his focus onto the sprawling product line. One of his pet peeves was Newton, the handheld personal digital assistant that boasted handwriting recognition capability. It was not quite as bad as the jokes and *Doonesbury* comic strip made it seem, but Jobs hated it. He disdained the idea of having a stylus or pen for writing on a screen. "God gave us ten styluses," he would say, waving his fingers. "Let's not invent another." In addition, he viewed Newton as John Sculley's one major innovation, his pet project. That alone doomed it in Jobs's eyes.

"You ought to kill Newton," he told Amelio one day by phone.

It was a suggestion out of the blue, and Amelio pushed back. "What do you mean, kill it?" he said. "Steve, do you have any idea how expensive that would be?"

"Shut it down, write it off, get rid of it," said Jobs. "It doesn't matter what it costs. People will cheer you if you got rid of it."

"I've looked into Newton and it's going to be a moneymaker," Amelio declared. "I don't support getting rid of it." By May, however, he announced plans to spin off the Newton division, the beginning of its yearlong stutter-step march to the grave.

Tevanian and Rubinstein would come by Jobs's house to keep him informed, and soon much of Silicon Valley knew that Jobs was quietly wresting power from Amelio. It was not so much a Machiavellian power play as it was Jobs being Jobs. Wanting control was ingrained in his nature. Louise Kehoe, the *Financial Times* reporter who had foreseen this when she questioned Jobs and Amelio at the December announcement, was the first with the story. "Mr. Jobs has become the power behind the throne," she reported at the end of February. "He is said to be directing decisions on which parts of Apple's operations should be cut. Mr. Jobs has urged a number of former Apple colleagues to return to the company, hinting strongly that he plans to take charge, they said. According to one of Mr. Jobs' confidantes, he has decided that Mr. Amelio and his appointees are unlikely to succeed in reviving Apple, and he is intent upon replacing them to ensure the survival of 'his company.' "

That month Amelio had to face the annual stockholders meeting and explain why the results for the final quarter of 1996 showed a 30% plummet in sales from the year before. Shareholders lined up at the microphones to vent their anger. Amelio was clueless about how poorly he handled the meeting. "The presentation was regarded as one of the best I had ever given," he later wrote. But Ed Woolard, the former CEO of DuPont who was now the chair of the Apple board (Markkula had been demoted to vice chair), was appalled. "This is a disaster," his wife whispered to him in the midst of the session. Woolard agreed. "Gil came dressed real cool, but he looked and sounded silly," he recalled. "He couldn't answer the questions, didn't know what he was talking about, and didn't inspire any confidence."

Woolard picked up the phone and called Jobs, whom he'd never met. The pretext was to invite him to Delaware to speak to DuPont executives. Jobs declined, but as Woolard recalled, "the request was a ruse in order to talk to him about Gil." He steered the phone call in that direction and asked Jobs point-blank what his impression of Amelio was. Woolard remembers Jobs being somewhat circumspect, saying that Amelio was not in the right job. Jobs recalled being more blunt:

> I thought to myself, I either tell him the truth, that Gil is a bozo, or I lie by omission. He's on the board of Apple, I have a duty to tell him what I think; on the other hand, if I tell him, he will tell Gil, in which case Gil will never listen to me again, and he'll fuck the people I brought into Apple. All of this took place in my head in less than thirty seconds. I finally decided that I owed this guy the truth. I cared deeply about Apple. So I just let him have it. I said this guy is the worst CEO I've ever seen, I think if you needed a license to be a CEO he wouldn't get one. When I hung up the phone, I thought, I probably just did a really stupid thing.

That spring Larry Ellison saw Amelio at a party and introduced him to the technology journalist Gina Smith, who asked how Apple was doing. "You know, Gina, Apple is like a ship," Amelio answered. "That ship is loaded with treasure, but there's a hole in the ship. And my job is to get everyone to row in the same direction." Smith looked perplexed and asked, "Yeah, but what about the hole?" From then on, Ellison and Jobs joked about the parable of the ship. "When Larry relayed this story to me, we were in this sushi place, and I literally fell off my chair laughing," Jobs recalled. "He was just such a buffoon, and he took himself so seriously. He insisted that everyone call him Dr. Amelio. That's always a warning sign."

Brent Schlender, *Fortune's* well-sourced technology reporter, knew Jobs and was familiar with his thinking, and in March he came out with a story detailing the mess. "Apple Computer, Silicon Valley's paragon of dysfunctional management and fumbled techno-dreams, is back in crisis mode, scrambling lugubriously in slow motion to deal with imploding sales, a floundering technology strategy, and a hemorrhaging brand name," he wrote. "To the Machiavellian eye, it looks as if Jobs, despite the lure of Hollywood—lately he has been overseeing Pixar, maker of *Toy Story* and other computer-animated films—might be scheming to take over Apple."

Once again Ellison publicly floated the idea of doing a hostile takeover and installing his "best friend" Jobs as CEO. "Steve's the only one who can save Apple," he told reporters. "I'm ready to help him the minute he says the word." Like the third time the boy cried wolf, Ellison's latest takeover musings didn't get much notice, so later in the month he told Dan Gillmore of the *San Jose Mercury News* that he was forming an investor group to raise $1 billion to buy a majority stake in Apple. (The company's market value was about $2.3 billion.) The day the story came out, Apple stock shot up 11% in heavy trading. To add to the frivolity, Ellison set up an email address, savapple@us.oracle.com, asking the general public to vote on whether he should go ahead with it.

Jobs was somewhat amused by Ellison's self-appointed role. "Larry brings this up now and then," he told a reporter. "I try to explain my role at Apple is to be an advisor." Amelio, however, was livid. He called Ellison to dress him down, but Ellison wouldn't take the call. So Amelio called Jobs, whose response was equivocal but also partly genuine. "I really don't understand what is going on," he told Amelio. "I think all this is crazy." Then he added a reassurance that was not at all genuine: "You and I have a good relationship." Jobs could have ended the speculation by releasing a statement rejecting Ellison's idea, but much to Amelio's annoyance, he didn't. He remained aloof, which served both his interests and his nature.

By then the press had turned against Amelio. *Business Week* ran a cover asking "Is Apple Mincemeat?"; *Red Herring* ran an editorial headlined "Gil Amelio, Please Resign"; and *Wired* ran a cover that showed the Apple logo crucified as a sacred heart with a crown of thorns and the headline "Pray." Mike Barnicle of the *Boston Globe*, railing against years of Apple mismanagement, wrote, "How can these nitwits still draw a paycheck when they took the only computer that didn't frighten people and turned it into the technological equivalent of the 1997 Red Sox bullpen?"

When Jobs and Amelio had signed the contract in February, Jobs began hopping around exuberantly and declared, "You and I need to go out and have a great bottle of wine to celebrate!" Amelio offered to bring wine from his cellar and suggested that they invite their wives. It took until June before they settled on a date, and despite the rising tensions they were able to have a good time. The food and wine were as mismatched as the diners; Amelio brought a bottle of 1964 Cheval Blanc and a Montrachet that each cost about $300; Jobs chose a vegetarian restaurant in Redwood City where the food bill totaled $72. Amelio's wife remarked afterward, "He's such a charmer, and his wife is too."

Jobs could seduce and charm people at will, and he liked to do so. People such as Amelio and Sculley allowed themselves to believe that because Jobs was charming them, it meant that he liked and respected them. It was an impression that he sometimes fostered by dishing out insincere flattery to those hungry for it. But Jobs could be charming to people he hated just as easily as he could be insulting to people he liked. Amelio didn't see this because, like Sculley, he was so eager for Jobs's affection. Indeed the words he used to describe his yearning for a good relationship with Jobs are almost the same as those used by Sculley. "When I was wrestling with a problem, I would walk through the issue with him," Amelio recalled. "Nine times out of ten we would agree." Somehow he willed himself to believe that Jobs really respected him: "I was in awe over the way Steve's mind approached problems, and had the feeling we were building a mutually trusting relationship."

Amelio's disillusionment came a few days after their dinner. During their negotiations, he had insisted that Jobs hold the Apple stock he got for at least six months, and preferably longer. That six months ended in June. When a block of 1.5 million shares was sold, Amelio called Jobs. "I'm telling people that the shares sold were not yours," he said. "Remember, you and I had an understanding that you wouldn't sell any without advising us first."

"That's right," Jobs replied. Amelio took that response to mean that Jobs had not sold his shares, and he issued a statement saying so. But when the next SEC filing came out, it revealed that Jobs had indeed sold the shares. "Dammit, Steve, I asked you point-blank about these shares and you denied it was you." Jobs told Amelio that he had sold in a "fit of depression" about where Apple was going and he didn't want to admit it because he was "a little embarrassed." When I asked him about it years later, he simply said, "I didn't feel I needed to tell Gil."

Why did Jobs mislead Amelio about selling the shares? One reason is simple: Jobs sometimes avoided the truth. Helmut Sonnenfeldt once said of Henry Kissinger, "He lies not because it's in his interest, he lies because it's in his nature." It was in Jobs's nature to mislead or be secretive when he felt it was warranted. But he also indulged in being brutally honest at times, telling the truths that most of us sugarcoat or suppress. Both the dissembling and the truth-telling were simply different aspects of his Nietzschean attitude that ordinary rules didn't apply to him.

Exit, Pursued by a Bear

Jobs had refused to quash Larry Ellison's takeover talk, and he had secretly sold his shares and been misleading about it. So Amelio finally became convinced that Jobs was gunning for him. "I finally absorbed the fact that I had been too willing and too eager to believe he was on my team," Amelio recalled. "Steve's plans to manipulate my termination were charging forward."

Jobs was indeed bad-mouthing Amelio at every opportunity. He couldn't help himself. But there was a more important factor in turning the board against Amelio. Fred Anderson, the chief financial officer, saw it as his fiduciary duty to keep Ed Woolard and the board informed of Apple's dire situation. "Fred was the guy telling me that cash was draining, people were leaving, and more key players were thinking of it," said Woolard. "He made it clear the ship was going to hit the sand soon, and even he was thinking of leaving." That added to the worries Woolard already had from watching Amelio bumble the shareholders meeting.

At an executive session of the board in June, with Amelio out of the room, Woolard described to current directors how he calculated their odds. "If we stay with Gil as CEO, I think there's only a 10% chance we will avoid bankruptcy," he said. "If we fire him and convince Steve to come take over, we have a 60% chance of surviving. If we fire Gil, don't get Steve back, and have to search for a new CEO, then we have a 40% chance of surviving." The board gave him authority to ask Jobs to return.

Woolard and his wife flew to London, where they were planning to watch the Wimbledon tennis matches. He saw some of the tennis during the day, but spent his evenings in his suite at the Inn on the Park calling people back in America, where it was daytime. By the end of his stay, his telephone bill was $2,000.

First, he called Jobs. The board was going to fire Amelio, he said, and it wanted Jobs to come back as CEO. Jobs had been aggressive in deriding Amelio and pushing his own ideas about where to take Apple. But suddenly, when offered the cup, he became coy. "I will help," he replied.

"As CEO?" Woolard asked.

Jobs said no. Woolard pushed hard for him to become at least the acting CEO. Again Jobs demurred. "I will be an advisor," he said. "Unpaid." He also agreed to become a board member—that was something he had yearned for—but declined to be the board chairman. "That's all I can give now," he said. After rumors began circulating, he emailed a memo to Pixar employees assuring them that he was not abandoning them. "I got a call from Apple's board of directors three weeks ago asking me to return to Apple as their CEO," he wrote. "I declined. They then asked me to become chairman, and I again declined. So don't worry—the crazy rumors are just that. I have no plans to leave Pixar. You're stuck with me."

Why did Jobs not seize the reins? Why was he reluctant to grab the job that for two decades he had seemed to desire? When I asked him, he said:

> We'd just taken Pixar public, and I was happy being CEO there. I never knew of anyone who served as CEO of two public companies, even temporarily, and I wasn't even sure it was legal. I didn't know what I wanted to do. I was enjoying spending more time with my family. I was torn. I knew Apple was a mess, so I wondered: Do I want to give up this nice lifestyle that I have? What are all the Pixar shareholders going to think? I talked to people I respected. I finally called Andy Grove at about eight one Saturday morning—too early. I gave him the pros and the cons, and in the middle he stopped me and said, "Steve, I don't give a shit about Apple." I was stunned. It was then I realized that I *do* give a shit about Apple—I started it and it is a good thing to have in the world. That was when I decided to go back on a temporary basis to help them hire a CEO.

The claim that he was enjoying spending more time with his family was not convincing. He was never destined to win a Father of the Year trophy, even when he had spare time on his hands. He was getting better at paying heed to his children, especially Reed, but his primary focus was on his work. He was frequently aloof from his two younger daughters, estranged again from Lisa, and often prickly as a husband.

So what was the real reason for his hesitancy in taking over at Apple? For all of his willfulness and insatiable desire to control things, Jobs was indecisive and reticent when he felt unsure about something. He craved perfection, and he was not always good at figuring out how to settle for something less. He did not like to wrestle with complexity or make accommodations. This was true in products, design, and furnishings for the house. It was also true when it came to personal commitments. If he knew for sure a course of action was right, he was unstoppable. But if he had doubts, he sometimes withdrew, preferring not to think about things that did not perfectly suit him. As happened when Amelio had asked him what role he wanted to play, Jobs would go silent and ignore situations that made him uncomfortable.

This attitude arose partly out of his tendency to see the world in binary terms. A person was either a hero or a bozo, a product was either amazing or shit. But he could be stymied by things that were more complex, shaded, or nuanced: getting married, buying the right sofa, committing to run a company. In addition, he didn't want to be set up for failure. "I think Steve wanted to assess whether Apple could be saved," Fred Anderson said.

Woolard and the board decided to go ahead and fire Amelio, even though Jobs was not yet forthcoming about how active a role he would play as an advisor. Amelio was about to go on a picnic with his wife, children, and grandchildren when the call came from Woolard in London. "We need you to step down," Woolard said simply. Amelio replied that it was not a good time to discuss this, but Woolard felt he had to persist. "We are going to announce that we're replacing you."

Amelio resisted. "Remember, Ed, I told the board it was going to take three years to get this company back on its feet again," he said. "I'm not even halfway through."

"The board is at the place where we don't want to discuss it further," Woolard replied. Amelio asked who knew about the decision, and Woolard told him the truth: the rest of the board plus Jobs. "Steve was one of the people we talked to about this," Woolard said. "His view is that you're a really nice guy, but you don't know much about the computer industry."

"Why in the world would you involve Steve in a decision like this?" Amelio replied, getting angry. "Steve is not even a member of the board of directors, so what the hell is he doing in any of this conversation?" But Woolard didn't back down, and Amelio hung up to carry on with the family picnic before telling his wife.

At times Jobs displayed a strange mixture of prickliness and neediness. He usually didn't care one iota what people thought of him; he could cut people off and never care to speak to them again. Yet sometimes he also felt a compulsion to explain himself. So that evening Amelio received, to his surprise, a phone call from Jobs. "Gee, Gil, I just wanted you to know, I talked to Ed today about this thing and I really feel bad about it," he said. "I want you to know that I had absolutely nothing to do with this turn of events, it was a decision the board made, but they had asked me for advice and counsel." He told Amelio he respected him for having "the highest integrity of anyone I've ever met," and went on to give some unsolicited advice. "Take six months off," Jobs told him. "When I got thrown out of Apple, I immediately went back to work, and I regretted it." He offered to be a sounding board if Amelio ever wanted more advice.

Amelio was stunned but managed to mumble a few words of thanks. He turned to his wife and recounted what Jobs said. "In ways, I still like the man, but I don't believe him," he told her.

"I was totally taken in by Steve," she said, "and I really feel like an idiot."

"Join the crowd," her husband replied.

Steve Wozniak, who was himself now an informal advisor to the company, was thrilled that Jobs was coming back. (He forgave easily.) "It was just what we needed," he said, "because whatever you think of Steve, he knows how to get the magic back." Nor did Jobs's triumph over Amelio surprise him. As he told *Wired* shortly after it happened, "Gil Amelio meets Steve Jobs, game over."

That Monday Apple's top employees were summoned to the auditorium. Amelio came in looking calm and relaxed. "Well, I'm sad to report that it's time for me to move on," he said. Fred Anderson, who had agreed to be interim CEO, spoke next, and he made it clear that he would be taking his cues from Jobs. Then, exactly twelve years since he had lost power in a July 4 weekend struggle, Jobs walked back onstage at Apple.

It immediately became clear that, whether or not he wanted to admit it publicly (or even to himself), Jobs was going to take control and not be a mere advisor. As soon as he came onstage that day—wearing shorts, sneakers, and a black turtleneck—he got to work reinvigorating his beloved institution. "Okay, tell me what's wrong with this place," he said. There were some murmurings, but Jobs cut them off. "It's the products!" he answered. "So what's wrong with the products?" Again there were a few attempts at an answer, until Jobs broke in to hand down the correct answer. "The products *suck*!" he shouted. "There's no sex in them anymore!"

Woolard was able to coax Jobs to agree that his role as an advisor would be a very active one. Jobs approved a statement saying that he had "agreed to step up my involvement with Apple for up to 90 days, helping them until they hire a new CEO." The clever formulation that Woolard used in his statement was that Jobs was coming back "as an advisor leading the team."

Jobs took a small office next to the boardroom on the executive floor, conspicuously eschewing Amelio's big corner office. He got involved in all aspects of the business: product design, where to cut, supplier negotiations, and advertising agency review. He believed that he had to stop the hemorrhaging of top Apple employees, and to do so he wanted to reprice their stock options. Apple stock had dropped so low that the options had become worthless. Jobs wanted to lower the exercise price, so they would be valuable again. At the time, that was legally permissible, but it was not considered good corporate practice. On his first Thursday back at Apple, Jobs called for a telephonic board meeting and outlined the problem. The directors balked. They asked for time to do a legal and financial study of what the change would mean. "It has to be done fast," Jobs told them. "We're losing good people."

Even his supporter Ed Woolard, who headed the compensation committee, objected. "At DuPont we never did such a thing," he said.

"You brought me here to fix this thing, and people are the key," Jobs argued. When the board proposed a study that could take two months, Jobs exploded: "Are you nuts?!?" He paused for a long moment of silence, then continued. "Guys, if you don't want to do this, I'm not coming back on Monday. Because I've got thousands of key decisions to make that are far more difficult than this, and if you can't throw your support behind this kind of decision, I will fail. So if you can't do this, I'm out of here, and you can blame it on me, you can say, 'Steve wasn't up for the job.' "

The next day, after consulting with the board, Woolard called Jobs back. "We're going to approve this," he said. "But some of the board members don't like it. We feel like you've put a gun to our head." The options for the top team (Jobs had none) were reset at $13.25, which was the price of the stock the day Amelio was ousted.

Instead of declaring victory and thanking the board, Jobs continued to seethe at having to answer to a board he didn't respect. "Stop the train, this isn't going to work," he told Woolard. "This company is in shambles, and I don't have time to wet-nurse the board. So I need all of you to resign. Or else I'm going to resign and not come back on Monday." The one person who could stay, he said, was Woolard.

Most members of the board were aghast. Jobs was still refusing to commit himself to coming back full-time or being anything more than an advisor, yet he felt he had the power to force them to leave. The hard truth, however, was that he did have that power over them. They could not afford for him to storm off in a fury, nor was the prospect of remaining an Apple board member very enticing by then. "After all they'd been through, most were glad to be let off," Woolard recalled.

Once again the board acquiesced. It made only one request: Would he permit one other director to stay, in addition to Woolard? It would help the optics. Jobs assented. "They were an awful board, a terrible board," he later said. "I agreed they could keep Ed Woolard and a guy named Gareth Chang, who turned out to be a zero. He wasn't terrible, just a zero. Woolard, on the other hand, was one of the best board members I've ever seen. He was a prince, one of the most supportive and wise people I've ever met."

Among those being asked to resign was Mike Markkula, who in 1976, as a young venture capitalist, had visited the Jobs garage, fallen in love with the nascent computer on the workbench, guaranteed a $250,000 line of credit, and become the third partner and one-third owner of the new company. Over the subsequent two decades, he was the one constant on the board, ushering in and out a variety of CEOs. He had supported Jobs at times but also clashed with him, most notably when he sided with Sculley in the showdowns of 1985. With Jobs returning, he knew that it was time for him to leave.

Jobs could be cutting and cold, especially toward people who crossed him, but he could also be sentimental about those who had been with him from the early days. Wozniak fell into that favored category, of course, even though they had drifted apart; so did Andy Hertzfeld and a few others from the Macintosh team. In the end, Mike Markkula did as well. "I felt deeply betrayed by him, but he was like a father and I always cared about him," Jobs later recalled. So when the time came to ask him to resign from the Apple board, Jobs drove to Markkula's chateau-like mansion in the Woodside hills to do it personally.

As usual, he asked to take a walk, and they strolled the grounds to a redwood grove with a picnic table. "He told me he wanted a new board because he wanted to start fresh," Markkula said. "He was worried that I might take it poorly, and he was relieved when I didn't."

They spent the rest of the time talking about where Apple should focus in the future. Jobs's ambition was to build a company that would endure, and he asked Markkula what the formula for that would be. Markkula replied that lasting companies know how to reinvent themselves. Hewlett-Packard had done that repeatedly; it started as an instrument company, then became a calculator company, then a computer company. "Apple has been sidelined by Microsoft in the PC business," Markkula said. "You've got to reinvent the company to do some other thing, like other consumer products or devices. You've got to be like a butterfly and have a metamorphosis." Jobs didn't say much, but he agreed.

The old board met in late July to ratify the transition. Woolard, who was as genteel as Jobs was prickly, was mildly taken aback when Jobs appeared dressed in jeans and sneakers, and he worried that Jobs might start berating the veteran board members for screwing up. But Jobs merely offered a pleasant "Hi, everyone." They got down to the business of voting to accept the resignations, elect Jobs to the board, and empower Woolard and Jobs to find new board members.

Jobs's first recruit was, not surprisingly, Larry Ellison. He said he would be pleased to join, but he hated attending meetings. Jobs said it would be fine if he came to only half of them. (After a while Ellison was coming to only a third of the meetings. Jobs took a picture of him that had appeared on the cover of *Business Week* and had it blown up to life size and pasted on a cardboard cutout to put in his chair.)

Jobs also brought in Bill Campbell, who had run marketing at Apple in the early 1980s and been caught in the middle of the Sculley-Jobs clash. Campbell had ended up sticking with Sculley, but he had grown to dislike him so much that Jobs forgave him. Now he was the CEO of Intuit and a walking buddy of Jobs. "We were sitting out in the back of his house," recalled Campbell, who lived only five blocks from Jobs in Palo Alto, "and he said he was going back to Apple and wanted me on the board. I said, 'Holy shit, of course I will do that.'"

Campbell had been a football coach at Columbia, and his great talent, Jobs said, was to "get A performances out of B players." At Apple, Jobs told him, he would get to work with A players.

Woolard helped bring in Jerry York, who had been the chief financial officer at Chrysler and then IBM. Others were considered and then rejected by Jobs, including Meg Whitman, who was then the manager of Hasbro's Playskool division and had been a strategic planner at Disney. (In 1998 she became CEO of eBay, and she later ran unsuccessfully for governor of California.) Over the years Jobs would bring in some strong leaders to serve on the Apple board, including Al Gore, Eric Schmidt of Google, Art Levinson of Genentech, Mickey Drexler of the Gap and J. Crew, and Andrea Jung of Avon. But he always made sure they were loyal, sometimes loyal to a fault. Despite their stature, they seemed at times awed or intimidated by Jobs, and they were eager to keep him happy.

At one point he invited Arthur Levitt, the former SEC chairman, to become a board member. Levitt, who bought his first Macintosh in 1984 and was proudly "addicted" to Apple computers, was thrilled. He was excited to visit Cupertino, where he discussed the role with Jobs. But then Jobs read a speech Levitt had given about corporate governance, which argued that boards should play a strong and independent role, and he telephoned to withdraw the invitation. "Arthur, I don't think you'd be happy on our board, and I think it best if we not invite you," Levitt said Jobs told him. "Frankly, I think some of the issues you raised, while appropriate for some companies, really don't apply to Apple's culture." Levitt later wrote, "I was floored. . . . It's plain to me that Apple's board is not designed to act independently of the CEO."

Macworld Boston, August 1997

The staff memo announcing the repricing of Apple's stock options was signed "Steve and the executive team," and it soon became public that he was running all of the company's product review meetings. These and other indications that Jobs was now deeply engaged at Apple helped push the stock up from about $13 to $20 during July. It also created a frisson of excitement as the Apple faithful gathered for the August 1997 Macworld in Boston. More than five thousand showed up hours in advance to cram into the Castle convention hall of the Park Plaza hotel for Jobs's keynote speech. They came to see their returning hero—and to find out whether he was really ready to lead them again.

Huge cheers erupted when a picture of Jobs from 1984 was flashed on the overhead screen. "Steve! Steve! Steve!" the crowd started to chant, even as he was still being introduced. When he finally strode onstage—wearing a black vest, collarless white shirt, jeans, and an impish smile—the screams and flashbulbs rivaled those for any rock star. At first he punctured the excitement by reminding them of where he officially worked. "I'm Steve Jobs, the chairman and CEO of Pixar," he introduced himself, flashing a slide onscreen with that title. Then he explained his role at Apple. "I, like a lot of other people, are pulling together to help Apple get healthy again."

But as Jobs paced back and forth across the stage, changing the overhead slides with a clicker in his hand, it was clear that he was now in charge at Apple—and was likely to remain so. He delivered a carefully crafted presentation, using no notes, on why Apple's sales had fallen by 30% over the previous two years. "There are a lot of great people at Apple, but they're doing the wrong things because the plan has been wrong," he said. "I've found people who can't wait to fall into line behind a good strategy, but there just hasn't been one." The crowd again erupted in yelps, whistles, and cheers.

As he spoke, his passion poured forth with increasing intensity, and he began saying "we" and "I"—rather than "they"—when referring to what Apple would be doing. "I think you still have to think differently to buy an Apple computer," he said. "The people who buy them do think different. They are the creative spirits in this world, and they're out to change the world. *We* make tools for those kinds of people." When he stressed the word "we" in that sentence, he cupped his hands and tapped his fingers on his chest. And then, in his final peroration, he continued to stress the word "we" as he talked about Apple's future. "We too are going to think differently and serve the people who have been buying our products from the beginning. Because a lot of people think they're crazy, but in that craziness we see genius." During the prolonged standing ovation, people looked at each other in awe, and a few wiped tears from their eyes. Jobs had made it very clear that he and the "we" of Apple were one.

The Microsoft Pact

The climax of Jobs's August 1997 Macworld appearance was a bombshell announcement, one that made the cover of both *Time* and *Newsweek.* Near the end of his speech, he paused for a sip of water and began to talk in more subdued tones. "Apple lives in an ecosystem," he said. "It needs help from other partners. Relationships that are destructive don't help anybody in this industry." For dramatic effect, he paused again, and then explained: "I'd like to announce one of our first new partnerships today, a very meaningful one, and that is one with Microsoft." The Microsoft and Apple logos appeared together on the screen as people gasped.

Apple and Microsoft had been at war for a decade over a variety of copyright and patent issues, most notably whether Microsoft had stolen the look and feel of Apple's graphical user interface. Just as Jobs was being eased out of Apple in 1985, John Sculley had struck a surrender deal: Microsoft could license the Apple GUI for Windows 1.0, and in return it would make Excel exclusive to the Mac for up to two years. In 1988, after Microsoft came out with Windows 2.0, Apple sued. Sculley contended that the 1985 deal did not apply to Windows 2.0 and that further refinements to Windows (such as copying Bill Atkinson's trick of "clipping" overlapping windows) had made the infringement more blatant. By 1997 Apple had lost the case and various appeals, but remnants of the litigation and threats of new suits lingered. In addition, President Clinton's Justice Department was preparing a massive antitrust case against Microsoft. Jobs invited the lead prosecutor, Joel Klein, to Palo Alto. Don't worry about extracting a huge remedy against Microsoft, Jobs told him over coffee. Instead simply keep them tied up in litigation. That would allow Apple the opportunity, Jobs explained, to "make an end run" around Microsoft and start offering competing products.

Under Amelio, the showdown had become explosive. Microsoft refused to commit to developing Word and Excel for future Macintosh operating systems, which could have destroyed Apple. In defense of Bill Gates, he was not simply being vindictive. It was understandable that he was reluctant to commit to developing for a future Macintosh operating system when no one, including the ever-changing leadership at Apple, seemed to know what that new operating system would be. Right after Apple bought NeXT, Amelio and Jobs flew together to visit Microsoft, but Gates had trouble figuring out which of them was in charge. A few days later he called Jobs privately. "Hey, what the fuck, am I supposed to put my applications on the NeXT OS?" Gates asked. Jobs responded by "making smart-ass remarks about Gil," Gates recalled, and suggesting that the situation would soon be clarified.

When the leadership issue was partly resolved by Amelio's ouster, one of Jobs's first phone calls was to Gates. Jobs recalled:

> I called up Bill and said, "I'm going to turn this thing around." Bill always had a soft spot for Apple. We got him into the application software business. The first Microsoft apps were Excel and Word for the Mac. So I called him and said, "I need help." Microsoft was walking over Apple's patents. I said, "If we kept up our lawsuits, a few years from now we could win a billion-dollar patent suit. You know it, and I know it. But Apple's not going to survive that long if we're at war. I know that. So let's figure out how to settle this right away. All I need is a commitment that Microsoft will keep developing for the Mac and an investment by Microsoft in Apple so it has a stake in our success."

When I recounted to him what Jobs said, Gates agreed it was accurate. "We had a group of people who liked working on the Mac stuff, and we liked the Mac," Gates recalled. He had been negotiating with Amelio for six months, and the proposals kept getting longer and more complicated. "So Steve comes in and says, 'Hey, that deal is too complicated. What I want is a simple deal. I want the commitment and I want an investment.' And so we put that together in just four weeks."

Gates and his chief financial officer, Greg Maffei, made the trip to Palo Alto to work out the framework for a deal, and then Maffei returned alone the following Sunday to work on the details. When he arrived at Jobs's home, Jobs grabbed two bottles of water out of the refrigerator and took Maffei for a walk around the Palo Alto neighborhood. Both men wore shorts, and Jobs walked barefoot. As they sat in front of a Baptist church, Jobs cut to the core issues. "These are the things we care about," he said. "A commitment to make software for the Mac and an investment."

Although the negotiations went quickly, the final details were not finished until hours before Jobs's Macworld speech in Boston. He was rehearsing at the Park Plaza Castle when his cell phone rang. "Hi, Bill," he said as his words echoed through the old hall. Then he walked to a corner and spoke in a soft tone so others couldn't hear. The call lasted an hour. Finally, the remaining deal points were resolved. "Bill, thank you for your support of this company," Jobs said as he crouched in his shorts. "I think the world's a better place for it."

During his Macworld keynote address, Jobs walked through the details of the Microsoft deal. At first there were groans and hisses from the faithful. Particularly galling was Jobs's announcement that, as part of the peace pact, "Apple has decided to make Internet Explorer its default browser on the Macintosh." The audience erupted in boos, and Jobs quickly added, "Since we believe in choice, we're going to be shipping other Internet browsers, as well, and the user can, of course, change their default should they choose to." There were some laughs and scattered applause. The audience was beginning to come around, especially when he announced that Microsoft would be investing $150 million in Apple and getting nonvoting shares.

But the mellower mood was shattered for a moment when Jobs made one of the few visual and public relations gaffes of his onstage career. "I happen to have a special guest with me today via satellite downlink," he said, and suddenly Bill Gates's face appeared on the huge screen looming over Jobs and the auditorium. There was a thin smile on Gates's face that flirted with being a smirk. The audience gasped in horror, followed by some boos and catcalls. The scene was such a brutal echo of the 1984 Big Brother ad that you half expected (and hoped?) that an athletic woman would suddenly come running down the aisle and vaporize the screenshot with a well-thrown hammer.

But it was all for real, and Gates, unaware of the jeering, began speaking on the satellite link from Microsoft headquarters. "Some of the most exciting work that I've done in my career has been the work that I've done with Steve on the Macintosh," he intoned in his high-pitched singsong. As he went on to tout the new version of Microsoft Office that was being made for the Macintosh, the audience quieted down and then slowly seemed to accept the new world order. Gates even was able to rouse some applause when he said that the new Mac versions of Word and Excel would be "in many ways more advanced than what we've done on the Windows platform."

Jobs realized that the image of Gates looming over him and the audience was a mistake. "I wanted him to come to Boston," Jobs later said. "That was my worst and stupidest staging event ever. It was bad because it made me look small, and Apple look small, and as if everything was in Bill's hands." Gates likewise was embarrassed when he saw the videotape of the event. "I didn't know that my face was going to be blown up to looming proportions," he said.

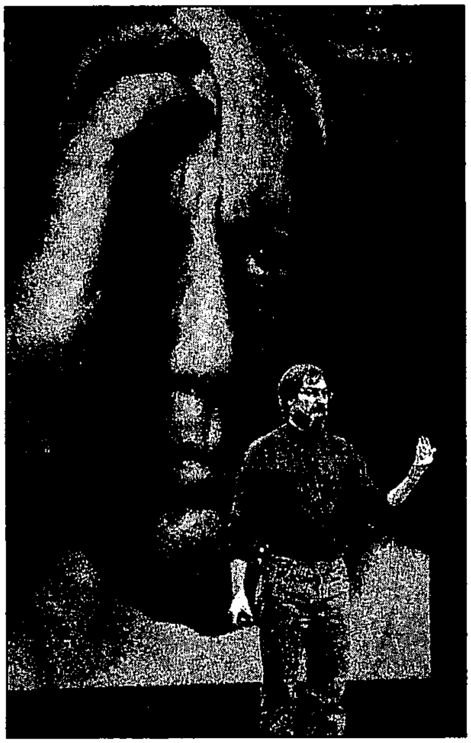
Jobs tried to reassure the audience with an impromptu sermon. "If we want to move forward and see Apple healthy again, we have to let go of a few things here," he told the audience. "We have to let go of this notion that for Apple to win Microsoft has to lose. . . . I think if we want Microsoft Office on the Mac, we better treat the company that puts it out with a little bit of gratitude."

The Microsoft announcement, along with Jobs's passionate reengagement with the company, provided a much-needed jolt for Apple. By the end of the day, its stock had skyrocketed $6.56, or 33%, to close at $26.31, twice the price of the day Amelio resigned. The one-day jump added $830 million to Apple's stock market capitalization. The company was back from the edge of the grave.

CHAPTER TWENTY-FIVE

THINK DIFFERENT

Jobs as iCEO



Enlisting Picasso

Here's to the Crazy Ones

Lee Clow, the creative director at Chiat/Day who had done the great "1984" ad for the launch of the Macintosh, was driving in Los Angeles in early July 1997 when his car phone rang. It was Jobs. "Hi, Lee, this is Steve," he said. "Guess what? Amelio just resigned. Can you come up here?"

Apple was going through a review to select a new agency, and Jobs was not impressed by what he had seen. So he wanted Clow and his firm, by then called TBWA\Chiat\Day, to compete for the business. "We have to prove that Apple is still alive," Jobs said, "and that it still stands for something special."

Clow said that he didn't pitch for accounts. "You know our work," he said. But Jobs begged him. It would be hard to reject all the others that were making pitches, including BBDO and Arnold Worldwide, and bring back "an old crony," as Jobs put it. Clow agreed to fly up to Cupertino with something they could show. Recounting the scene years later, Jobs started to cry.

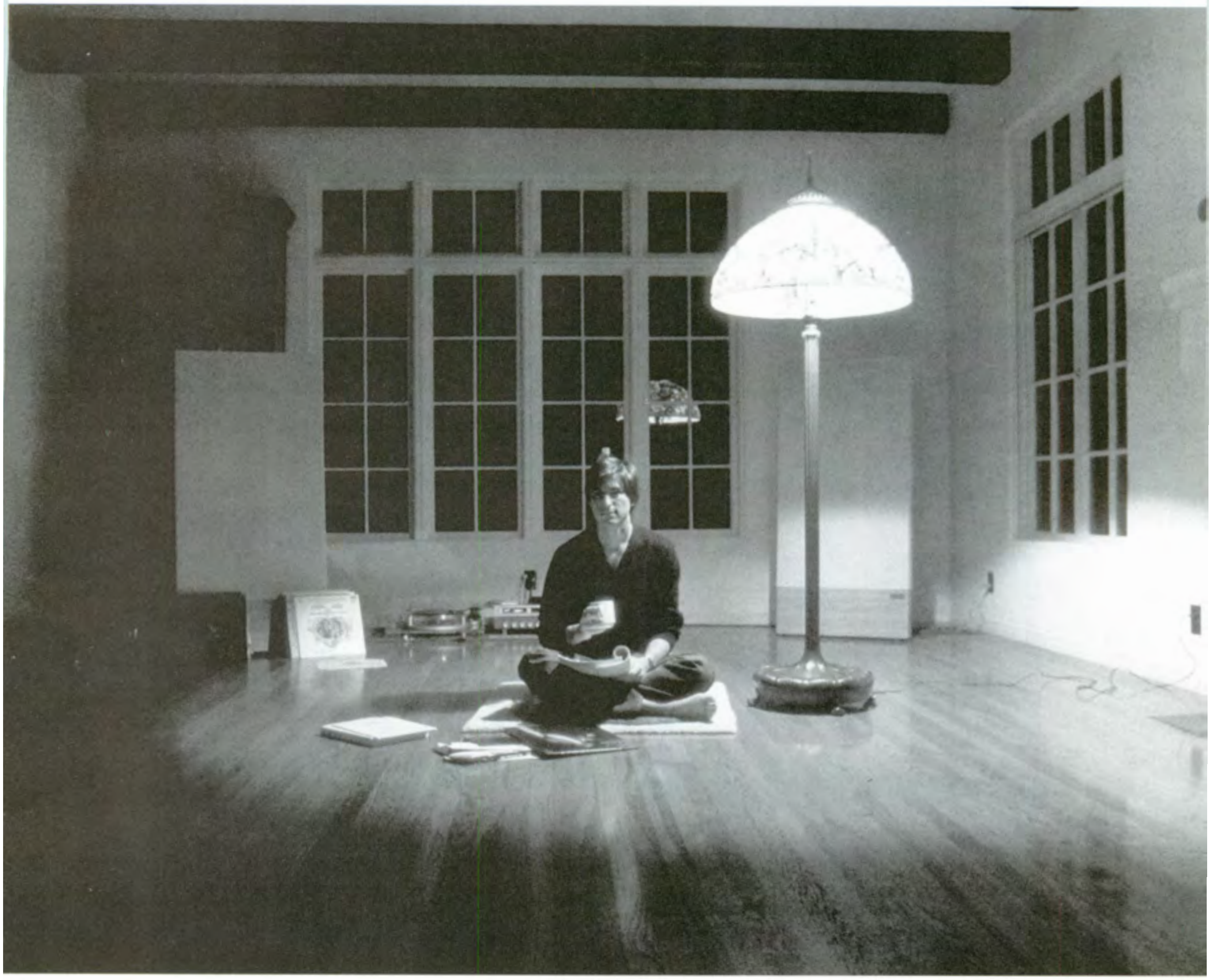
> This chokes me up, this really chokes me up. It was so clear that Lee loved Apple so much. Here was the best guy in advertising. And he hadn't pitched in ten years. Yet here he was, and he was pitching his heart out, because he loved Apple as much as we did. He and his team had come up with this brilliant idea, "Think Different." And it was ten times better than anything the other agencies showed. It choked me up, and it still makes me cry to think about it, both the fact that Lee cared so much and also how brilliant his "Think Different" idea was. Every once in a while, I find myself in the presence of purity—purity of spirit and love—and I always cry. It always just reaches in and grabs me. That was one of those moments. There was a purity about that I will never forget. I cried in my office as he was showing me the idea, and I still cry when I think about it.

Jobs and Clow agreed that Apple was one of the great brands of the world, probably in the top five based on emotional appeal, but they needed to remind folks what was distinctive about it. So they wanted a brand image campaign, not a set of advertisements featuring products. It was designed to celebrate not what the computers could do, but what creative people could do with the computers. "This wasn't about processor speed or memory," Jobs recalled. "It was about creativity." It was directed not only at potential customers, but also at Apple's own employees: "We at Apple had forgotten who we were. One way to remember who you are is to remember who your heroes are. That was the genesis of that campaign."

A Portfolio of Diana Walker Photos

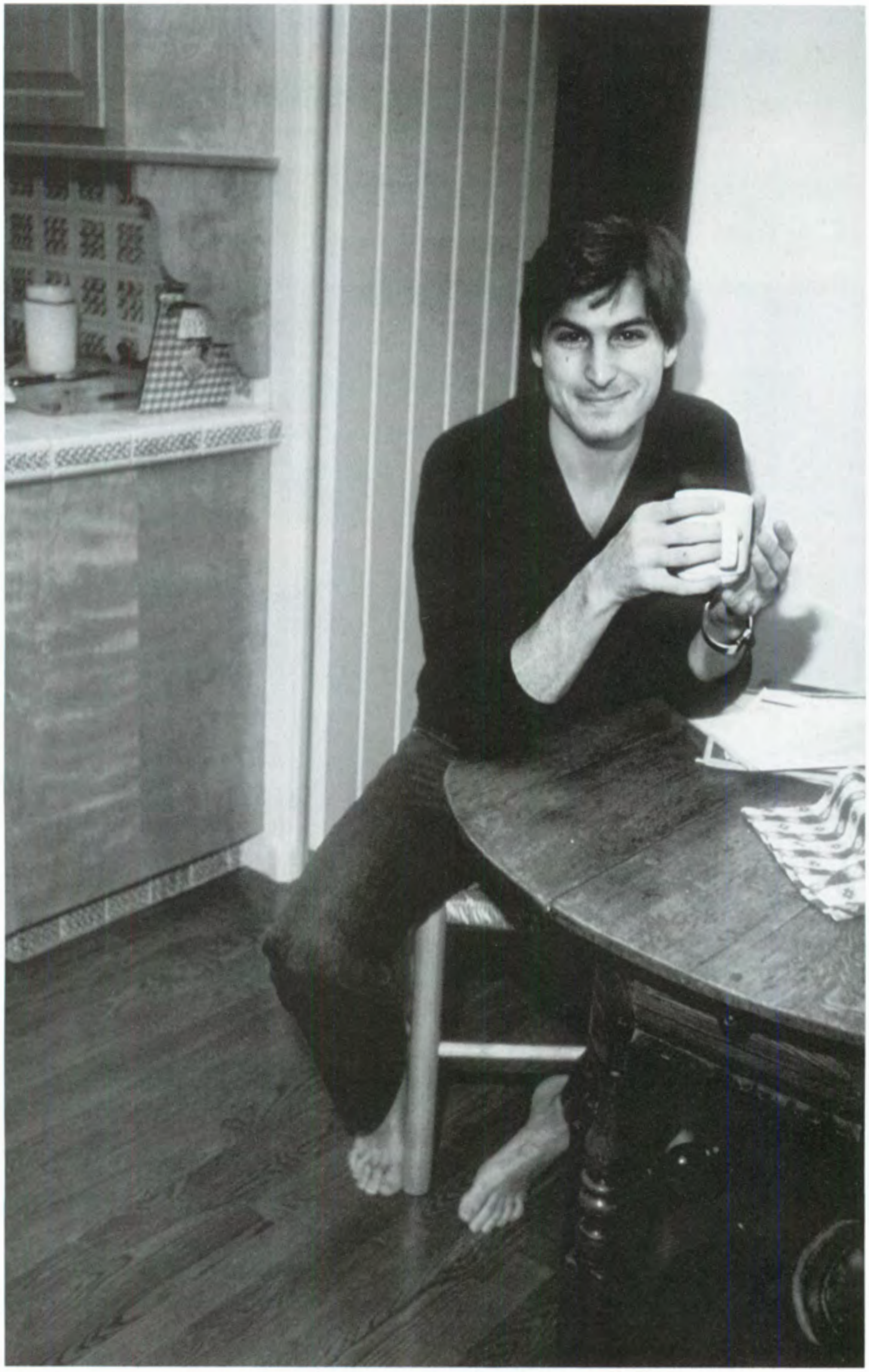
For almost thirty years, photographer Diana Walker
has had special access to her friend Steve Jobs.
Here is a selection from her portfolio.

1



At his home in Woodside, 1982: He was such a perfectionist that he had trouble buying furniture.

2



In his kitchen: "Coming back after seven months in Indian villages, I saw the craziness of the Western world as well as its capacity for rational thought."

3

At Stanford, 1982: "How many of you are virgins? How many of you have taken LSD?"

4

With the Lisa: "Picasso had a saying—'good artists copy, great artists steal'—and we have always been shameless about stealing great ideas."

5

With John Sculley in Central Park, 1984: "Do you want to spend the rest of your life selling sugared water, or do you want a chance to change the world?"

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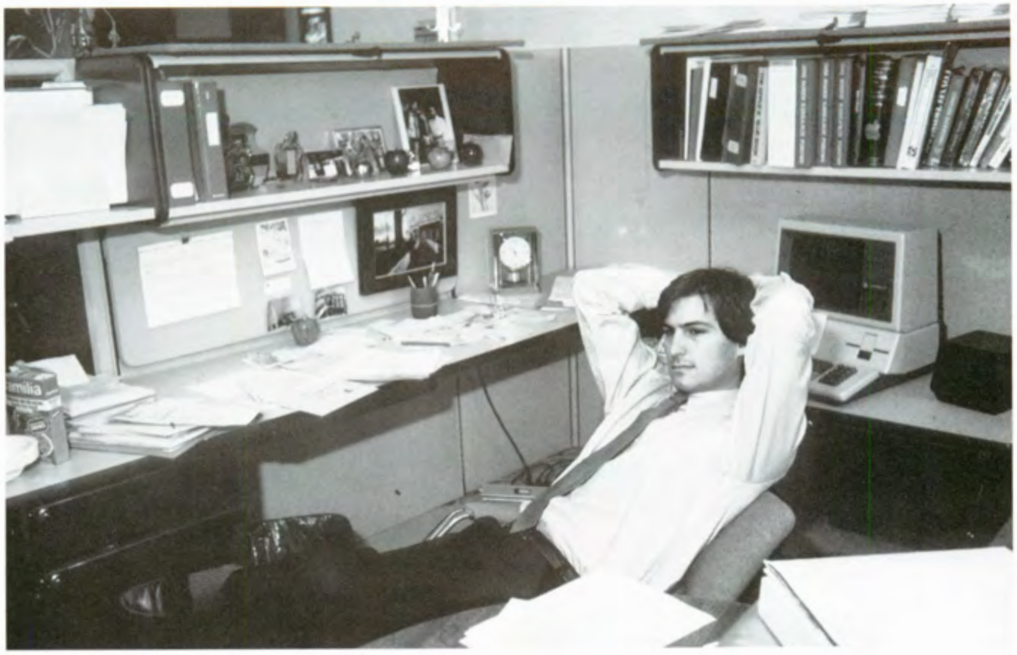


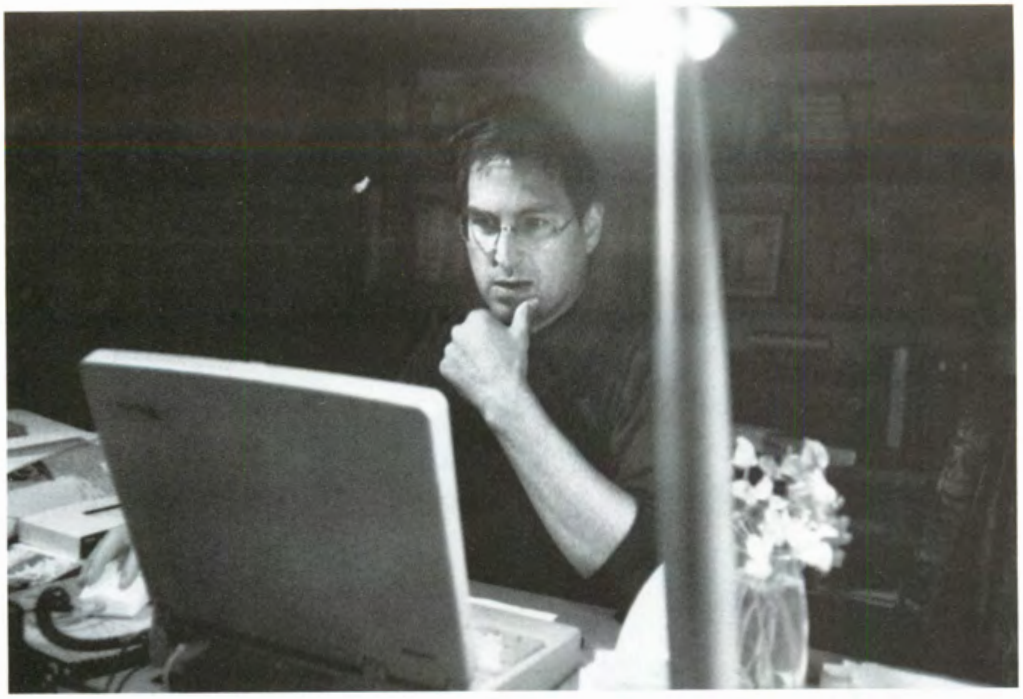
In his Apple office, 1982: Asked if he wanted to do market research, he said, "No, because customers don't know what they want until we've shown them."

7

At NeXT, 1988: Freed from the constraints at Apple, he indulged his own best and worst instincts.

With John Lasseter, August 1997: His cherubic face and demeanor masked an artistic perfectionism that rivaled that of Jobs.

9



At home working on his Boston Macworld speech after regaining command of Apple, 1997: "In that craziness we see genius."

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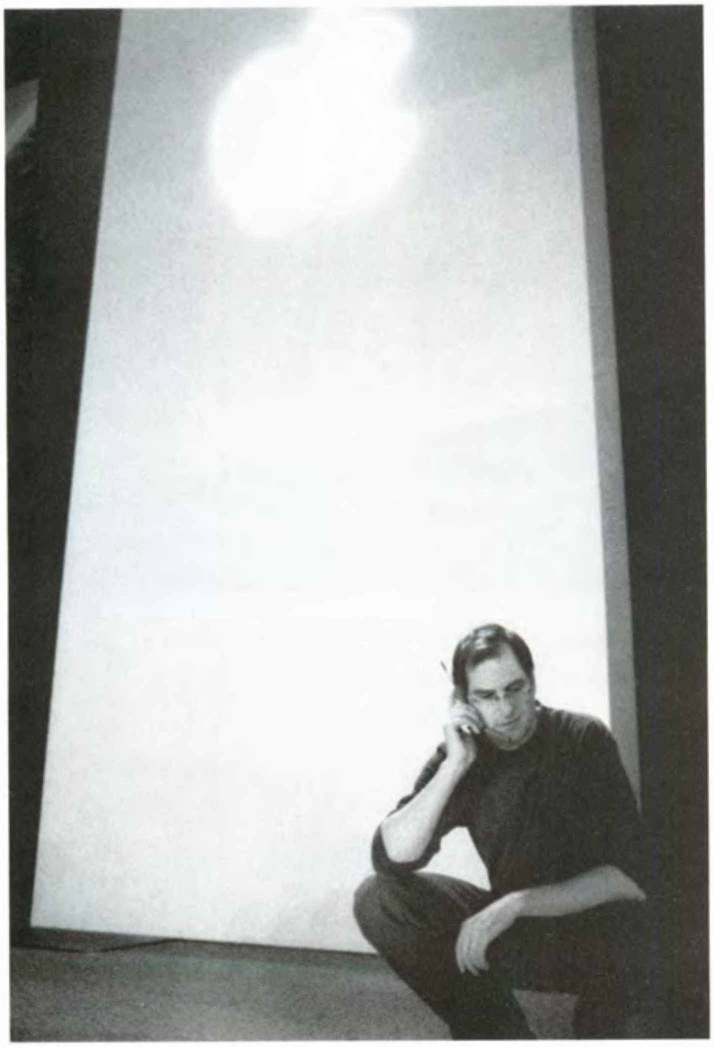
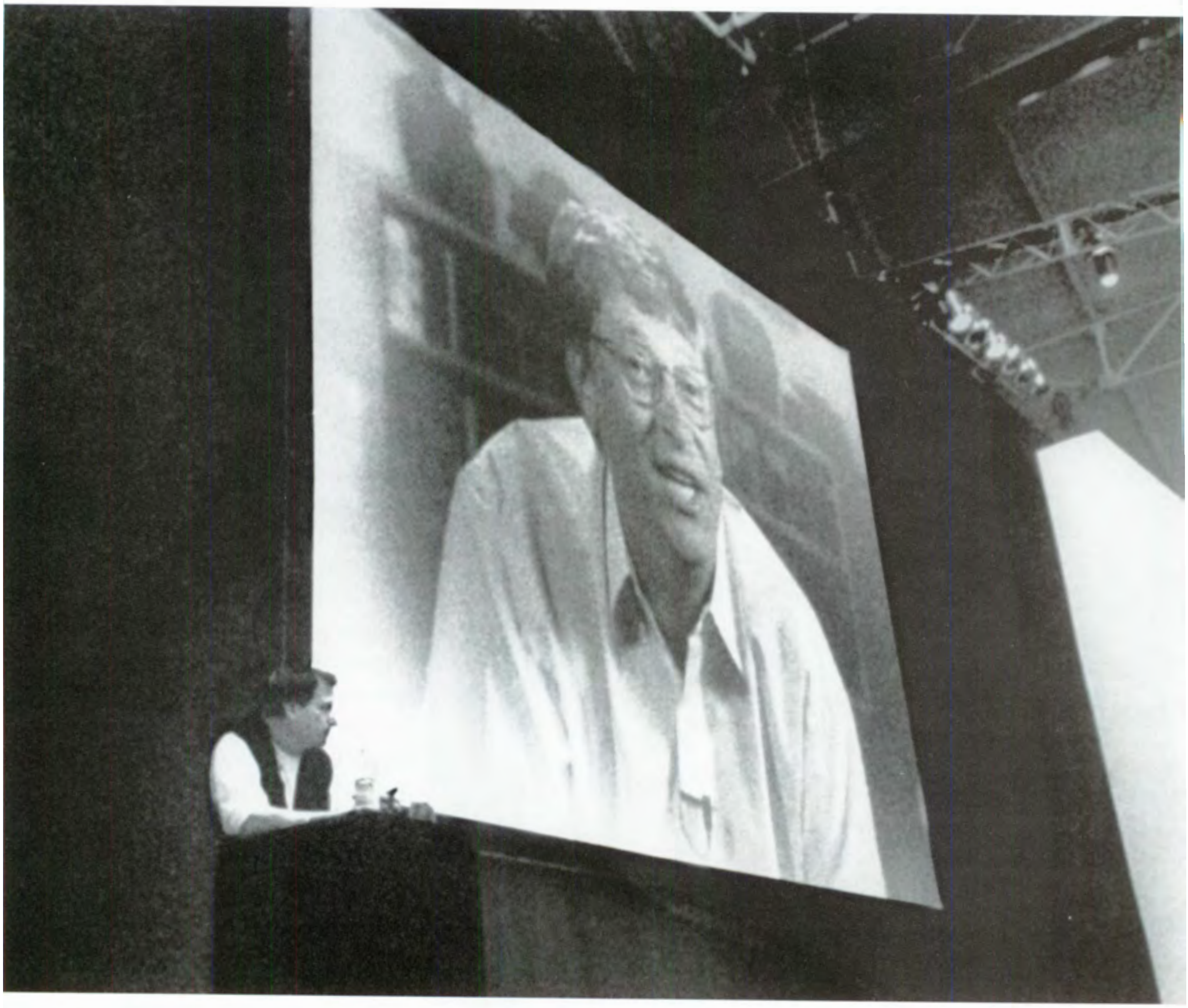
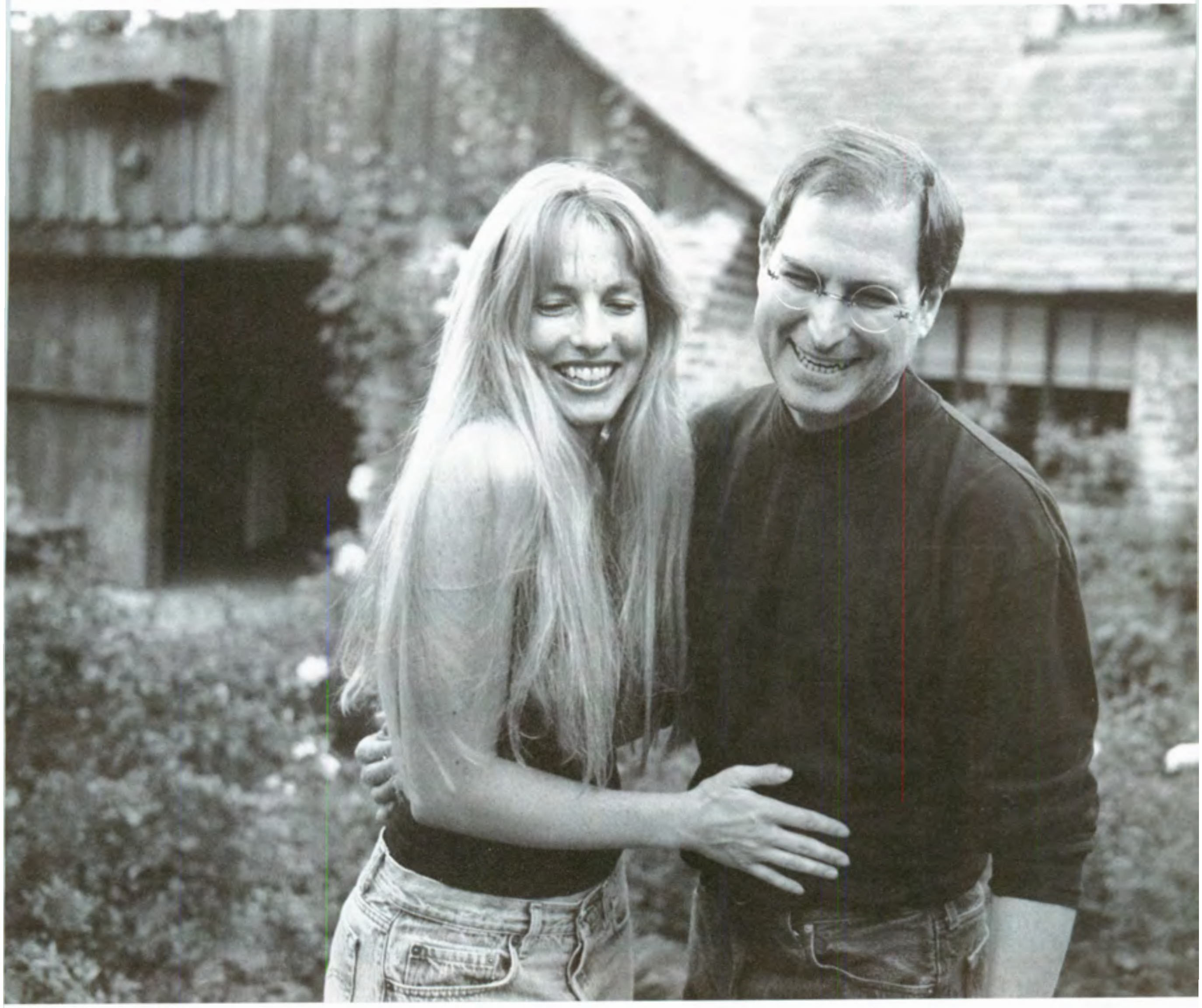


Sealing the Microsoft deal by phone with Gates: "Bill, thank you for your support of this company. I think the world's a better place for it."

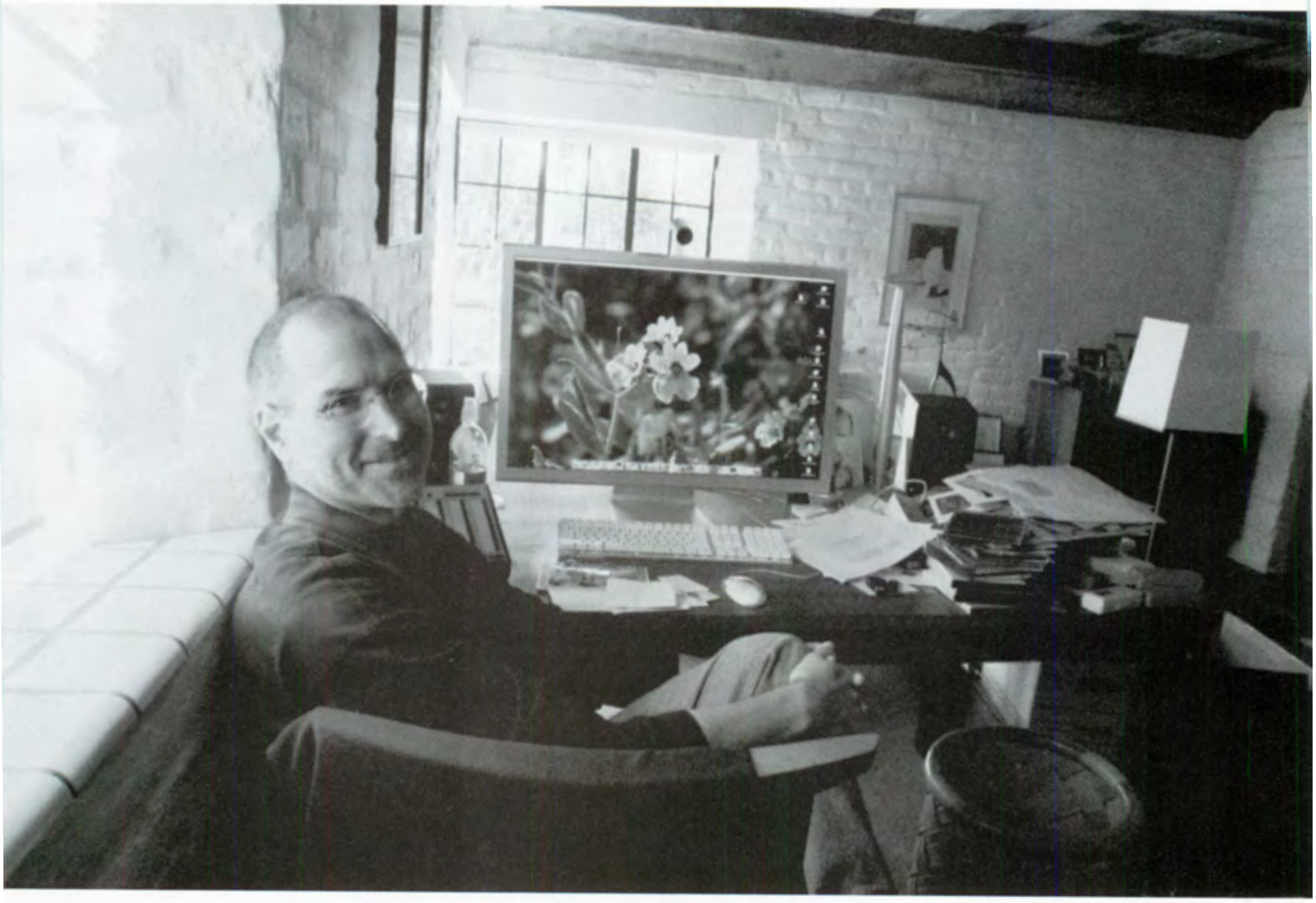
11



At Boston Macworld, as Gates discusses their deal: "That was my worst and stupidest staging event ever. It made me look small."



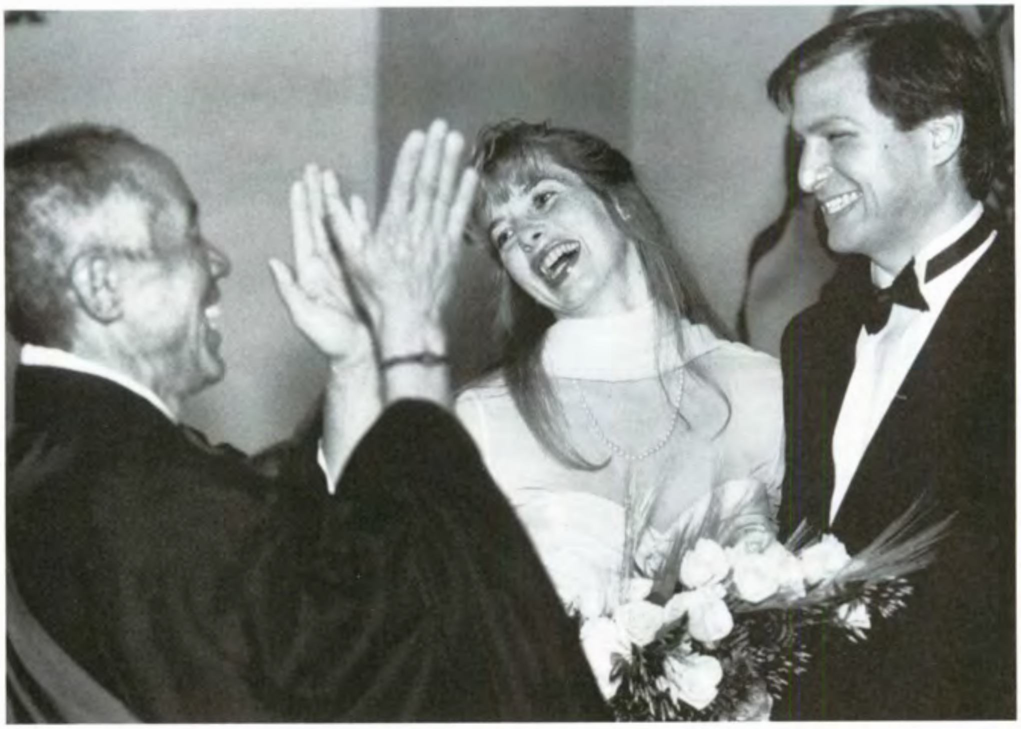
With his wife, Laurene Powell, in their backyard in Palo Alto, August 1997: She was the sensible anchor in his life.



At his home office in Palo Alto, 2004: "I like living at the intersection of the humanities and technology."

From the Jobs Family Album

In August 2011, when Jobs was very ill, we sat in his room and went through wedding and vacation pictures for me to use in this book.



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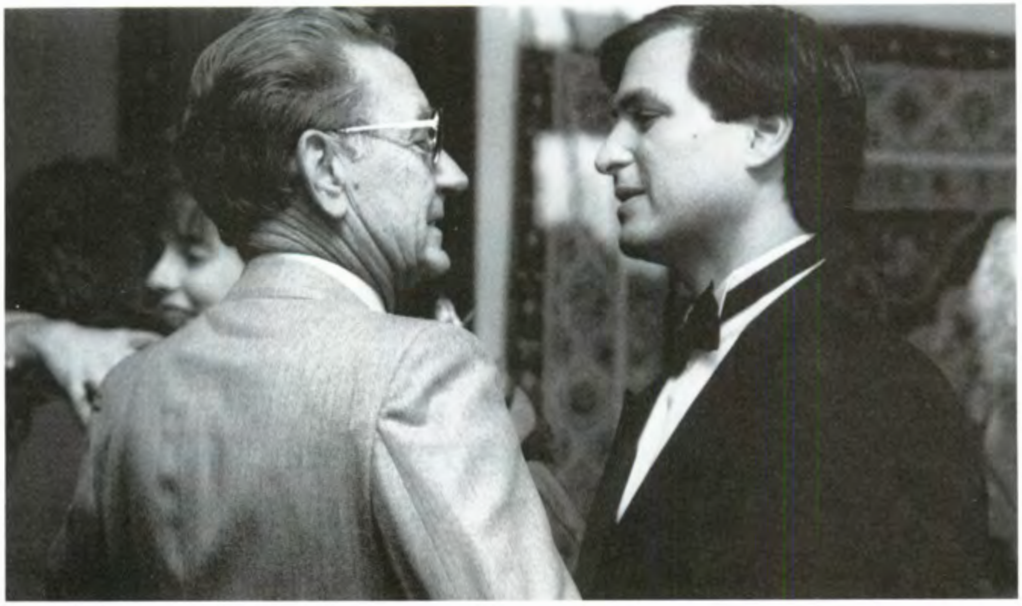
The wedding ceremony, 1991: Kobun Chino, Steve's Sōtō Zen teacher, shook a stick, struck a gong, lit incense, and chanted.



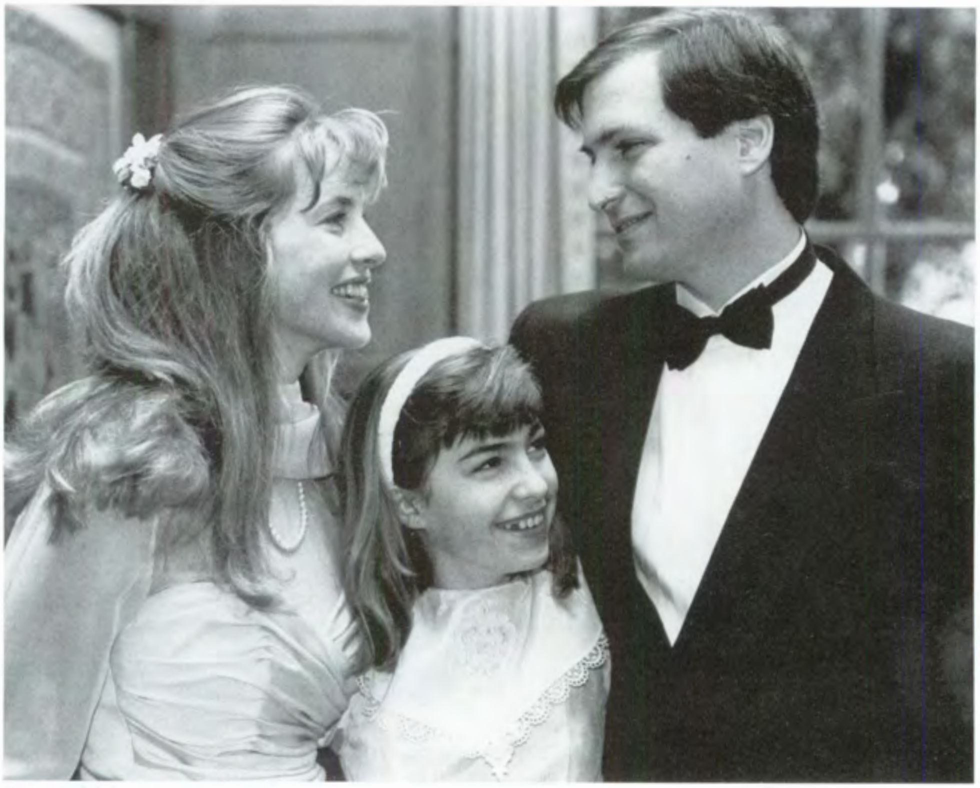
15

With his proud father Paul Jobs: After Steve's sister Mona tracked down their biological father, Steve refused ever to meet him.

16

LEFT: Cutting the cake in the shape of Half Dome with Laurene and his daughter from a previous relationship, Lisa Brennan.

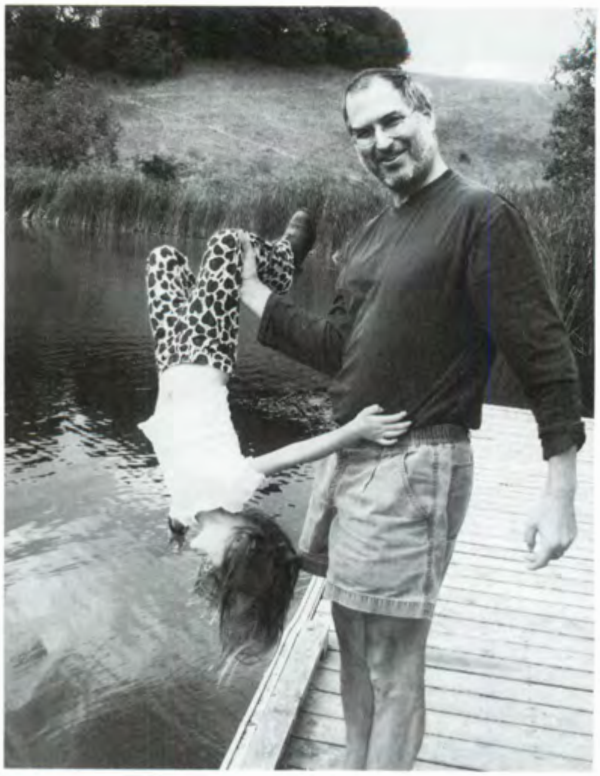
BELOW: Laurene, Lisa, and Steve: Lisa moved into their home shortly afterward and stayed through her high school years.



17

Steve, Eve, Reed, Erin, and Laurene in Ravello, Italy, 2003: Even on vacation, he often withdrew into his work.

Dangling Eve in Foothills Park, Palo Alto: "She's a pistol and has the strongest will of any kid I've ever met. It's like payback."



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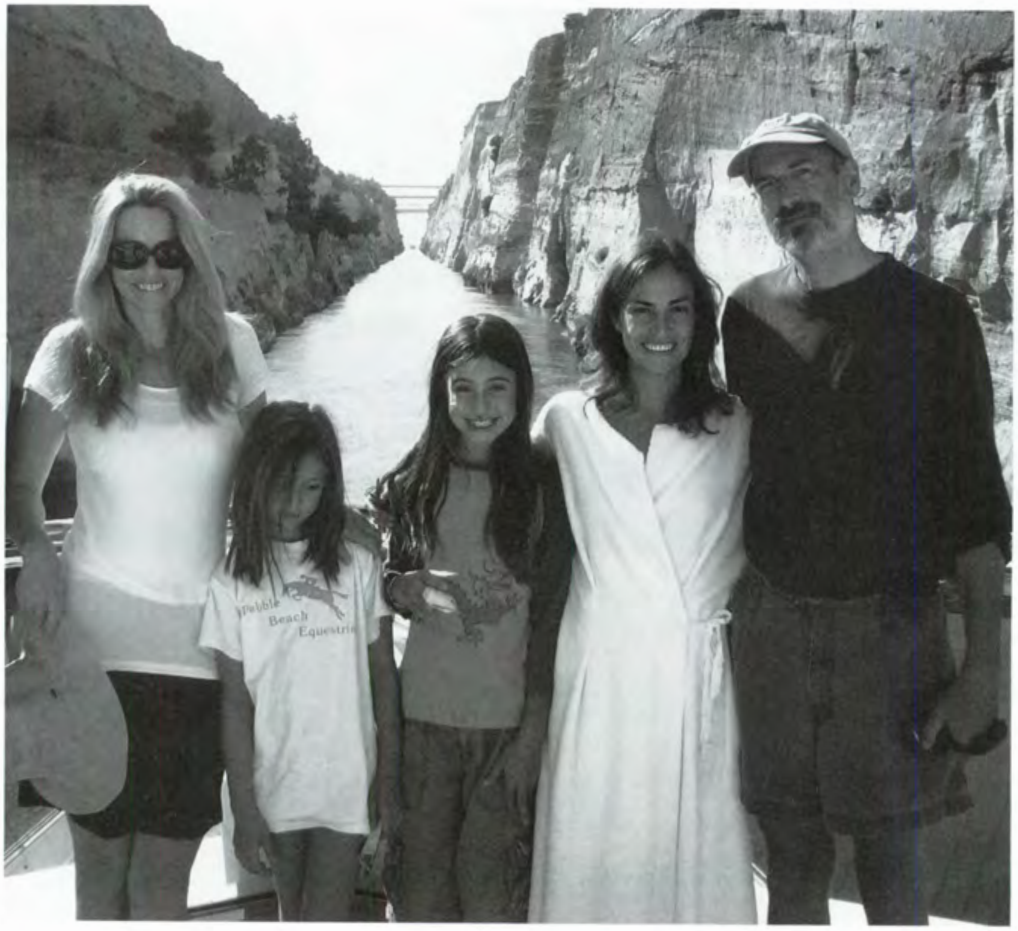
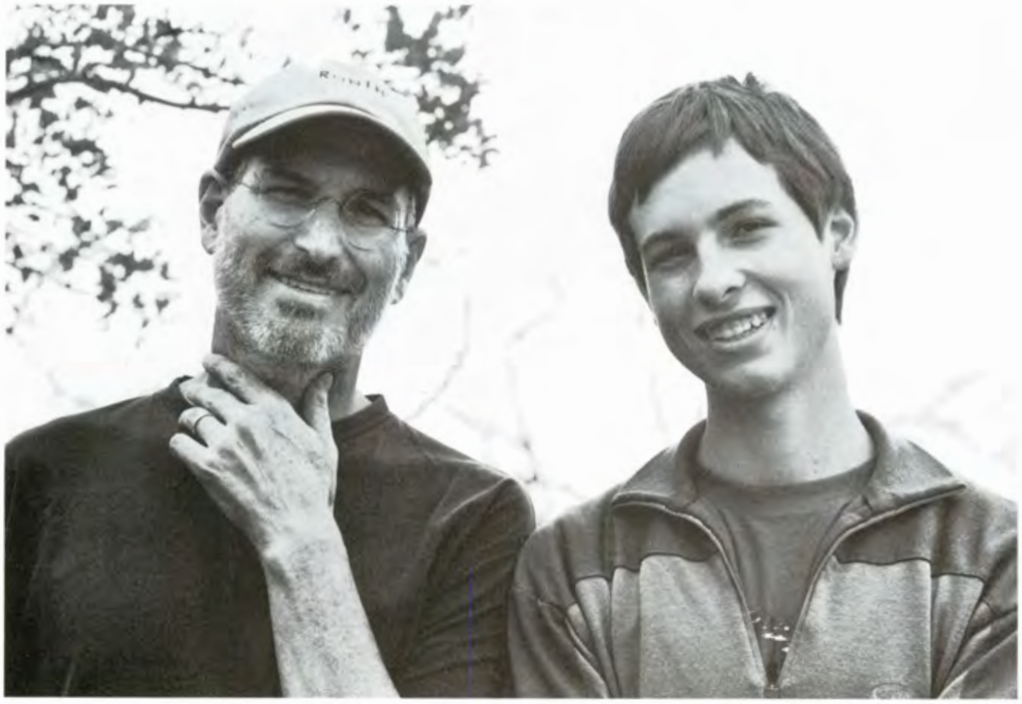


20

With Laurene, Eve, Erin, and Lisa at the Corinth Canal in Greece, 2006: "For young people, this whole world is the same now."

21

With Erin in Kyoto, 2010: Like Reed and Lisa, she got a special trip to Japan with her father.



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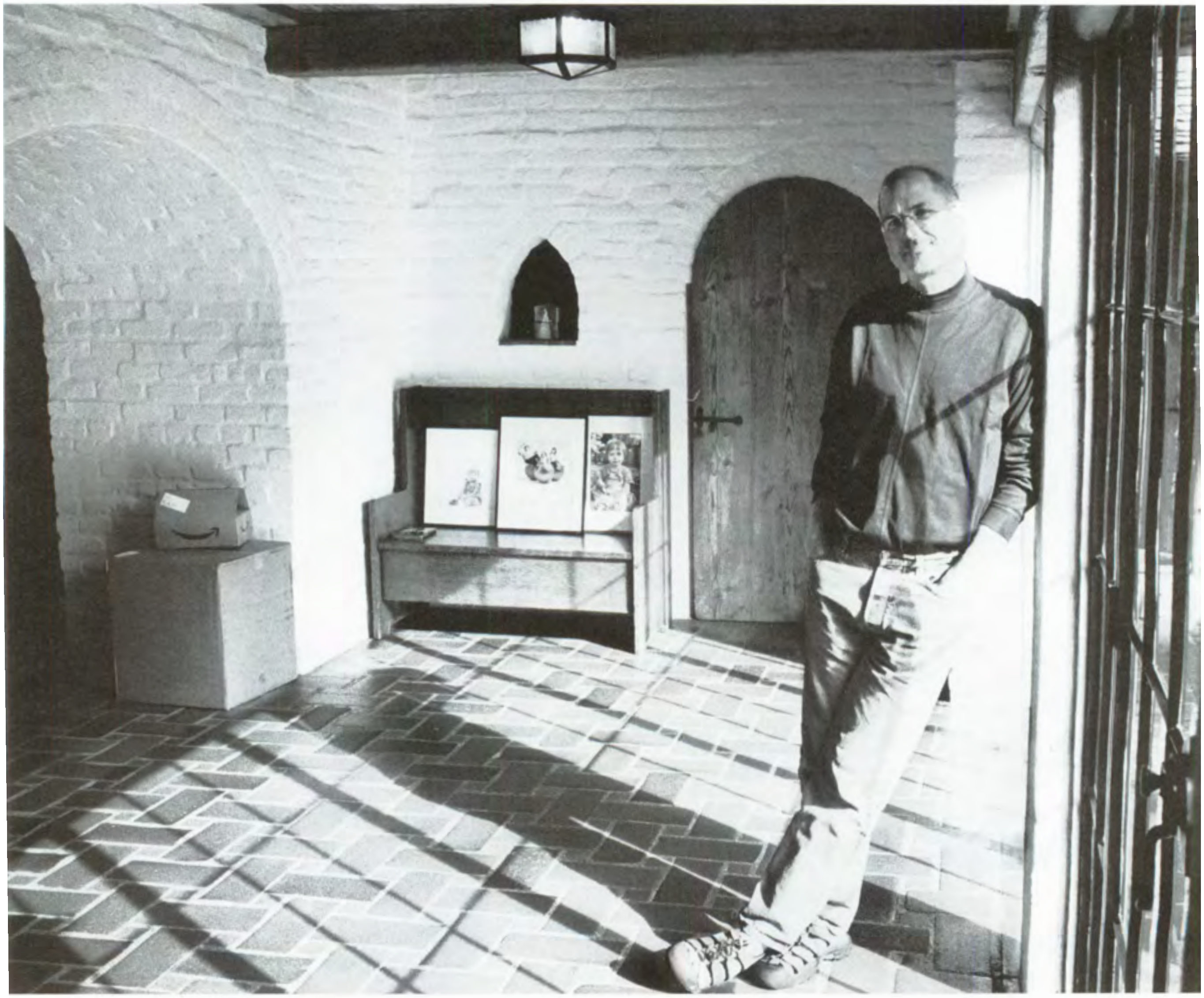
With Reed in Kenya, 2007: "When I was diagnosed with cancer, I made my deal with God or whatever, which was that I really wanted to see Reed graduate."

23



And just one more from Diana Walker: a 2004 portrait at his house in Palo Alto.

Clow and his team tried a variety of approaches that praised the "crazy ones" who "think different." They did one video with the Seal song "Crazy" ("We're never gonna survive unless we get a little crazy"), but couldn't get the rights to it. Then they tried versions using a recording of Robert Frost reading "The Road Not Taken" and of Robin Williams's speeches from *Dead Poets Society*. Eventually they decided they needed to write their own text; their draft began, "Here's to the crazy ones."

Jobs was as demanding as ever. When Clow's team flew up with a version of the text, he exploded at the young copywriter. "This is shit!" he yelled. "It's advertising agency shit and I hate it." It was the first time the young copywriter had met Jobs, and he stood there mute. He never went back. But those who could stand up to Jobs, including Clow and his teammates Ken Segall and Craig Tanimoto, were able to work with him to create a tone poem that he liked. In its original sixty-second version it read:

> Here's to the crazy ones. The misfits. The rebels. The troublemakers. The round pegs in the square holes. The ones who see things differently. They're not fond of rules. And they have no respect for the status quo. You can quote them, disagree with them, glorify or vilify them. About the only thing you can't do is ignore them. Because they change things. They push the human race forward. And while some may see them as the crazy ones, we see genius. Because the people who are crazy enough to think they can change the world are the ones who do.

Jobs, who could identify with each of those sentiments, wrote some of the lines himself, including "They push the human race forward." By the time of the Boston Macworld in early August, they had produced a rough version. They agreed it was not ready, but Jobs used the concepts, and the "think different" phrase, in his keynote speech there. "There's a germ of a brilliant idea there," he said at the time. "Apple is about people who think outside the box, who want to use computers to help them change the world."

They debated the grammatical issue: If "different" was supposed to modify the verb "think," it should be an adverb, as in "think differently." But Jobs insisted that he wanted "different" to be used as a noun, as in "think victory" or "think beauty." Also, it echoed colloquial use, as in "think big." Jobs later explained, "We discussed whether it was correct before we ran it. It's grammatical, if you think about what we're trying to say. It's not think *the same*, it's think *different*. Think a little different, think a lot different, think different. 'Think *differently*' wouldn't hit the meaning for me."

In order to evoke the spirit of *Dead Poets Society*, Clow and Jobs wanted to get Robin Williams to read the narration. His agent said that Williams didn't do ads, so Jobs tried to call him directly. He got through to Williams's wife, who would not let him talk to the actor because she knew how persuasive he could be. They also considered Maya Angelou and Tom Hanks. At a fund-raising dinner featuring Bill Clinton that fall, Jobs pulled the president aside and asked him to telephone Hanks to talk him into it, but the president pocket-vetoed the request. They ended up with Richard Dreyfuss, who was a dedicated Apple fan.

In addition to the television commercials, they created one of the most memorable print campaigns in history. Each ad featured a black-and-white portrait of an iconic historical figure with just the Apple logo and the words "Think Different" in the corner. Making it particularly engaging was that the faces were not captioned. Some of them—Einstein, Gandhi, Lennon, Dylan, Picasso, Edison, Chaplin, King—were easy to identify. But others caused people to pause, puzzle, and maybe ask a friend to put a name to the face: Martha Graham, Ansel Adams, Richard Feynman, Maria Callas, Frank Lloyd Wright, James Watson, Amelia Earhart.

Most were Jobs's personal heroes. They tended to be creative people who had taken risks, defied failure, and bet their career on doing things in a different way. A photography buff, he became involved in making sure they had the perfect iconic portraits. "This is not the right picture of Gandhi," he erupted to Clow at one point. Clow explained that the famous Margaret Bourke-White photograph of Gandhi at the spinning wheel was owned by Time-Life Pictures and was not available for commercial use. So Jobs called Norman Pearlstine, the editor in chief of Time Inc., and badgered him into making an exception. He called Eunice Shriver to convince her family to release a picture that he loved, of her brother Bobby Kennedy touring Appalachia, and he talked to Jim Henson's children personally to get the right shot of the late Muppeteer.

He likewise called Yoko Ono for a picture of her late husband, John Lennon. She sent him one, but it was not Jobs's favorite. "Before it ran, I was in New York, and I went to this small Japanese restaurant that I love, and let her know I would be there," he recalled. When he arrived, she came over to his table. "This is a better one," she said, handing him an envelope. "I thought I would see you, so I had this with me." It was the classic photo of her and John in bed together, holding flowers, and it was the one that Apple ended up using. "I can see why John fell in love with her," Jobs recalled.

The narration by Richard Dreyfuss worked well, but Lee Clow had another idea. What if Jobs did the voice-over himself? "You really believe this," Clow told him. "You should do it." So Jobs sat in a studio, did a few takes, and soon produced a voice track that everyone liked. The idea was that, if they used it, they would not tell people who was speaking the words, just as they didn't caption the iconic pictures. Eventually people would figure out it was Jobs. "This will be really powerful to have it in your voice," Clow argued. "It will be a way to reclaim the brand."

Jobs couldn't decide whether to use the version with his voice or to stick with Dreyfuss. Finally, the night came when they had to ship the ad; it was due to air, appropriately enough, on the television premiere of *Toy Story*. As was often the case, Jobs did not like to be forced to make a decision. He told Clow to ship both versions; this would give him until the morning to decide. When morning came, Jobs called and told them to use the Dreyfuss version. "If we use my voice, when people find out they will say it's about me," he told Clow. "It's not. It's about Apple."

Ever since he left the apple commune, Jobs had defined himself, and by extension Apple, as a child of the counterculture. In ads such as "Think Different" and "1984," he positioned the Apple brand so that it reaffirmed his own rebel streak, even after he became a billionaire, and it allowed other baby boomers and their kids to do the same. "From when I first met him as a young guy, he's had the greatest intuition of the impact he wants his brand to have on people," said Clow.

Very few other companies or corporate leaders—perhaps none—could have gotten away with the brilliant audacity of associating their brand with Gandhi, Einstein, Picasso, and the Dalai Lama. Jobs was able to encourage people to define themselves as anticorporate, creative, innovative rebels simply by the computer they used. "Steve created the only lifestyle brand in the tech industry," Larry Ellison said. "There are cars people are proud to have—Porsche, Ferrari, Prius—because what I drive says something about me. People feel the same way about an Apple product."

Starting with the "Think Different" campaign, and continuing through the rest of his years at Apple, Jobs held a freewheeling three-hour meeting every Wednesday afternoon with his top agency, marketing, and communications people to kick around messaging strategy. "There's not a CEO on the planet who deals with marketing the way Steve does," said Clow. "Every Wednesday he approves each new commercial, print ad, and billboard." At the end of the meeting, he would often take Clow and his two agency colleagues, Duncan Milner and James Vincent, to Apple's closely guarded design studio to see what products were in the works. "He gets very passionate and emotional when he shows us what's in development," said Vincent. By sharing with his marketing gurus his passion for the products as they were being created, he was able to ensure that almost every ad they produced was infused with his emotion.

iCEO

As he was finishing work on the "Think Different" ad, Jobs did some different thinking of his own. He decided that he would officially take over running the company, at least on a temporary basis. He had been the de facto leader since Amelio's ouster ten weeks earlier, but only as an advisor. Fred Anderson had the titular role of interim CEO. On September 16, 1997, Jobs announced that he would take over that title, which inevitably got abbreviated as iCEO. His commitment was tentative: He took no salary and signed no contract. But he was not tentative in his actions. He was in charge, and he did not rule by consensus.

That week he gathered his top managers and staff in the Apple auditorium for a rally, followed by a picnic featuring beer and vegan food, to celebrate his new role and the company's new ads. He was wearing shorts, walking around the campus barefoot, and had a stubble of beard. "I've been back about ten weeks, working really hard," he said, looking tired but deeply determined. "What we're trying to do is not highfalutin. We're trying to get back to the basics of great products, great marketing, and great distribution. Apple has drifted away from doing the basics really well."

For a few more weeks Jobs and the board kept looking for a permanent CEO. Various names surfaced—George M. C. Fisher of Kodak, Sam Palmisano at IBM, Ed Zander at Sun Microsystems—but most of the candidates were understandably reluctant to consider becoming CEO if Jobs was going to remain an active board member. The *San Francisco Chronicle* reported that Zander declined to be considered because he "didn't want Steve looking over his shoulder, second-guessing him on every decision." At one point Jobs and Ellison pulled a prank on a clueless computer consultant who was campaigning for the job; they sent him an email saying that he had been selected, which caused both amusement and embarrassment when stories appeared in the papers that they were just toying with him.

By December it had become clear that Jobs's iCEO status had evolved from *interim* to *indefinite.* As Jobs continued to run the company, the board quietly deactivated its search. "I went back to Apple and tried to hire a CEO, with the help of a recruiting agency, for almost four months," he recalled. "But they didn't produce the right people. That's why I finally stayed. Apple was in no shape to attract anybody good."

The problem Jobs faced was that running two companies was brutal. Looking back on it, he traced his health problems back to those days:

> It was rough, really rough, the worst time in my life. I had a young family. I had Pixar. I would go to work at 7 a.m. and I'd get back at 9

> at night, and the kids would be in bed. And I couldn't speak, I literally couldn't, I was so exhausted. I couldn't speak to Laurene. All I could do was watch a half hour of TV and vegetate. It got close to killing me. I was driving up to Pixar and down to Apple in a black Porsche convertible, and I started to get kidney stones. I would rush to the hospital and the hospital would give me a shot of Demerol in the butt and eventually I would pass it.

Despite the grueling schedule, the more that Jobs immersed himself in Apple, the more he realized that he would not be able to walk away. When Michael Dell was asked at a computer trade show in October 1997 what he would do if he were Steve Jobs and taking over Apple, he replied, "I'd shut it down and give the money back to the shareholders." Jobs fired off an email to Dell. "CEOs are supposed to have class," it said. "I can see that isn't an opinion you hold." Jobs liked to stoke up rivalries as a way to rally his team—he had done so with IBM and Microsoft—and he did so with Dell. When he called together his managers to institute a build-to-order system for manufacturing and distribution, Jobs used as a backdrop a blown-up picture of Michael Dell with a target on his face. "We're coming after you, buddy," he said to cheers from his troops.

One of his motivating passions was to build a lasting company. At age twelve, when he got a summer job at Hewlett-Packard, he learned that a properly run company could spawn innovation far more than any single creative individual. "I discovered that the best innovation is sometimes the company, the way you organize a company," he recalled. "The whole notion of how you build a company is fascinating. When I got the chance to come back to Apple, I realized that I would be useless without the company, and that's why I decided to stay and rebuild it."

Killing the Clones

One of the great debates about Apple was whether it should have licensed its operating system more aggressively to other computer makers, the way Microsoft licensed Windows. Wozniak had favored that approach from the beginning. "We had the most beautiful operating system," he said, "but to get it you had to buy our hardware at twice the price. That was a mistake. What we should have done was calculate an appropriate price to license the operating system." Alan Kay, the star of Xerox PARC who came to Apple as a fellow in 1984, also fought hard for licensing the Mac OS software. "Software people are always multiplatform, because you want to run on everything," he recalled. "And that was a huge battle, probably the largest battle I lost at Apple."

Bill Gates, who was building a fortune by licensing Microsoft's operating system, had urged Apple to do the same in 1985, just as Jobs was being eased out. Gates believed that, even if Apple took away some of Microsoft's operating system customers, Microsoft could make money by creating versions of its applications software, such as Word and Excel, for the users of the Macintosh and its clones. "I was trying to do everything to get them to be a strong licensor," he recalled. He sent a formal memo to Sculley making the case. "The industry has reached the point where it is now impossible for Apple to create a standard out of their innovative technology without support from, and the resulting credibility of, other personal computer manufacturers," he argued. "Apple should license Macintosh technology to 3–5 significant manufacturers for the development of 'Mac Compatibles.' " Gates got no reply, so he wrote a second memo suggesting some companies that would be good at cloning the Mac, and he added, "I want to help in any way I can with the licensing. Please give me a call."

Apple resisted licensing out the Macintosh operating system until 1994, when CEO Michael Spindler allowed two small companies, Power Computing and Radius, to make Macintosh clones. When Gil Amelio took over in 1996, he added Motorola to the list. It turned out to be a dubious business strategy: Apple got an $80 licensing fee for each computer sold, but instead of expanding the market, the cloners cannibalized the sales of Apple's own high-end computers, on which it made up to $500 in profit.

Jobs's objections to the cloning program were not just economic, however. He had an inbred aversion to it. One of his core principles was that hardware and software should be tightly integrated. He loved to control all aspects of his life, and the only way to do that with computers was to take responsibility for the user experience from end to end.

So upon his return to Apple he made killing the Macintosh clones a priority. When a new version of the Mac operating system shipped in July 1997, weeks after he had helped oust Amelio, Jobs did not allow the clone makers to upgrade to it. The head of Power Computing, Stephen "King" Kahng, organized pro-cloning protests when Jobs appeared at Boston Macworld that August and publicly warned that the Macintosh OS would die if Jobs declined to keep licensing it out. "If the platform goes closed, it is over," Kahng said. "Total destruction. Closed is the kiss of death."

Jobs disagreed. He telephoned Ed Woolard to say he was getting Apple out of the licensing business. The board acquiesced, and in September he reached a deal to pay Power Computing $100 million to relinquish its license and give Apple access to its database of customers. He soon terminated the licenses of the other cloners as well. "It was the dumbest thing in the world to let companies making crappier hardware use our operating system and cut into our sales," he later said.

Product Line Review

One of Jobs's great strengths was knowing how to focus. "Deciding what *not* to do is as important as deciding what to do," he said. "That's true for companies, and it's true for products."

He went to work applying this principle as soon as he returned to Apple. One day he was walking the halls and ran into a young Wharton School graduate who had been Amelio's assistant and who said he was wrapping up his work. "Well, good, because I need someone to do grunt work," Jobs told him. His new role was to take notes as Jobs met with the dozens of product teams at Apple, asked them to explain what they were doing, and forced them to justify going ahead with their products or projects.

He also enlisted a friend, Phil Schiller, who had worked at Apple but was then at the graphics software company Macromedia. "Steve would summon the teams into the boardroom, which seats twenty, and they would come with thirty people and try to show PowerPoints, which Steve didn't want to see," Schiller recalled. One of the first things Jobs did during the product review process was ban PowerPoints. "I hate the way people use slide presentations instead of thinking," Jobs later recalled. "People would confront a problem by creating a presentation. I wanted them to engage, to hash things out at the table, rather than show a bunch of slides. People who know what they're talking about don't need PowerPoint."

The product review revealed how unfocused Apple had become. The company was churning out multiple versions of each product because of bureaucratic momentum and to satisfy the whims of retailers. "It was insanity," Schiller recalled. "Tons of products, most of them crap, done by deluded teams." Apple had a dozen versions of the Macintosh, each with a different confusing number, ranging from 1400 to 9600. "I had people explaining this to me for three weeks," Jobs said. "I couldn't figure it out." He finally began asking simple questions, like, "Which ones do I tell my friends to buy?"

When he couldn't get simple answers, he began slashing away at models and products. Soon he had cut 70% of them. "You are bright people," he told one group. "You shouldn't be wasting your time on such crappy products." Many of the engineers were infuriated at his slash-and-burn tactics, which resulted in massive layoffs. But Jobs later claimed that the good engineers, including some whose projects were killed, were appreciative. He told one staff meeting in September 1997, "I came out of the meeting with people who had just gotten their products canceled and they were three feet off the ground with excitement because they finally understood where in the heck we were going."

After a few weeks Jobs finally had enough. "Stop!" he shouted at one big product strategy session. "This is crazy." He grabbed a magic marker, padded to a whiteboard, and drew a horizontal and vertical line to make a four-squared chart. "Here's what we need," he continued. Atop the two columns he wrote "Consumer" and "Pro"; he labeled the two rows "Desktop" and "Portable." Their job, he said, was to make four great products, one for each quadrant. "The room was in dumb silence," Schiller recalled.

There was also a stunned silence when Jobs presented the plan to the September meeting of the Apple board. "Gil had been urging us to approve more and more products every meeting," Woolard recalled. "He kept saying we need more products. Steve came in and said we needed fewer. He drew a matrix with four quadrants and said that this was where we should focus." At first the board pushed back. It was a risk, Jobs was told. "I can make it work," he replied. The board never voted on the new strategy. Jobs was in charge, and he forged ahead.

The result was that the Apple engineers and managers suddenly became sharply focused on just four areas. For the professional desktop quadrant, they would work on making the Power Macintosh G3. For the professional portable, there would be the PowerBook G3. For the consumer desktop, work would begin on what became the iMac. And for the consumer portable, they would focus on what would become the iBook. The "i," Jobs later explained, was to emphasize that the devices would be seamlessly integrated with the Internet.

Apple's sharper focus meant getting the company out of other businesses, such as printers and servers. In 1997 Apple was selling StyleWriter color printers that were basically a version of the Hewlett-Packard DeskJet. HP made most of its money by selling the ink cartridges. "I don't understand," Jobs said at the product review meeting. "You're going to ship a million and not make money on these? This is nuts." He left the room and called the head of HP. Let's tear up our arrangement, Jobs proposed, and we will get out of the printer business and just let you do it. Then he came back to the boardroom and announced the decision. "Steve looked at the situation and instantly knew we needed to get outside of the box," Schiller recalled.

The most visible decision he made was to kill, once and for all, the Newton, the personal digital assistant with the almost-good handwriting-recognition system. Jobs hated it because it was Sculley's pet project, because it didn't work perfectly, and because he had an aversion to stylus devices. He had tried to get Amelio to kill it early in 1997 and succeeded only in convincing him to try to spin off the division. By late 1997, when Jobs did his product reviews, it was still around. He later described his thinking:

> If Apple had been in a less precarious situation, I would have drilled down myself to figure out how to make it work. I didn't trust the people running it. My gut was that there was some really good technology, but it was fucked up by mismanagement. By shutting it down, I freed up some good engineers who could work on new mobile devices. And eventually we got it right when we moved on to iPhones and the iPad.

This ability to focus saved Apple. In his first year back, Jobs laid off more than three thousand people, which salvaged the company's balance sheet. For the fiscal year that ended when Jobs became interim CEO in September 1997, Apple lost $1.04 billion. "We were less than ninety days from being insolvent," he recalled. At the January 1998 San Francisco Macworld, Jobs took the stage where Amelio had bombed a year earlier. He sported a full beard and a leather jacket as he touted the new product strategy. And for the first time he ended the presentation with a phrase that he would make his signature coda: "Oh, and one more thing . . ." This time the "one more thing" was "Think Profit." When he said those words, the crowd erupted in applause. After two years of staggering losses, Apple had enjoyed a profitable quarter, making $45 million. For the full fiscal year of 1998, it would turn in a $309 million profit. Jobs was back, and so was Apple.

CHAPTER TWENTY-SIX

DESIGN PRINCIPLES

The Studio of Jobs and Ive

With Jony Ive and the sunflower iMac, 2002

Jony Ive

When Jobs gathered his top management for a pep talk just after he became iCEO in September 1997, sitting in the audience was a sensitive and passionate thirty-year-old Brit who was head of the company's design team. Jonathan Ive, known to all as Jony, was planning to quit. He was sick of the company's focus on profit maximization rather than product design. Jobs's talk led him to reconsider. "I remember very clearly Steve announcing that our goal is not just to make money but to make great products," Ive recalled. "The decisions you make based on that philosophy are fundamentally different from the ones we had been making at Apple." Ive and Jobs would soon forge a bond that would lead to the greatest industrial design collaboration of their era.

Ive grew up in Chingford, a town on the northeast edge of London. His father was a silversmith who taught at the local college. "He's a fantastic craftsman," Ive recalled. "His Christmas gift to me would be one day of his time in his college workshop, during the Christmas break when no one else was there, helping me make whatever I dreamed up." The only condition was that Jony had to draw by hand what they planned to make. "I always understood the beauty of things made by hand. I came to realize that what was really important was the care that was put into it. What I really despise is when I sense some carelessness in a product."

Ive enrolled in Newcastle Polytechnic and spent his spare time and summers working at a design consultancy. One of his creations was a pen with a little ball on top that was fun to fiddle with. It helped give the owner a playful emotional connection to the pen. For his thesis he designed a microphone and earpiece—in purest white plastic—to communicate with hearing-impaired kids. His flat was filled with foam models he had made to help him perfect the design. He also designed an ATM machine and a curved phone, both of which won awards from the Royal Society of Arts. Unlike some designers, he didn't just make beautiful sketches; he also focused on how the engineering and inner components would work. He had an epiphany in college when he was able to design on a Macintosh. "I discovered the Mac and felt I had a connection with the people who were making this product," he recalled. "I suddenly understood what a company was, or was supposed to be."

After graduation Ive helped to build a design firm in London, Tangerine, which got a consulting contract with Apple. In 1992 he moved to Cupertino to take a job in the Apple design department. He became the head of the department in 1996, the year before Jobs returned, but wasn't happy. Amelio had little appreciation for design. "There wasn't that feeling of putting care into a product, because we were trying to maximize the money we made," Ive said. "All they wanted from us designers was a model of what something was supposed to look like on the outside, and then engineers would make it as cheap as possible. I was about to quit."

When Jobs took over and gave his pep talk, Ive decided to stick around. But Jobs at first looked around for a world-class designer from the outside. He talked to Richard Sapper, who designed the IBM ThinkPad, and Giorgetto Giugiaro, who designed the Ferrari 250 and the Maserati Ghibli. But then he took a tour of Apple's design studio and bonded with the affable, eager, and very earnest Ive. "We discussed approaches to forms and materials," Ive recalled. "We were on the same wavelength. I suddenly understood why I loved the company."

Ive reported, at least initially, to Jon Rubinstein, whom Jobs had brought in to head the hardware division, but he developed a direct and unusually strong relationship with Jobs. They began to have lunch together regularly, and Jobs would end his day by dropping by Ive's design studio for a chat. "Jony had a special status," said Laurene Powell. "He would come by our house, and our families became close. Steve is never intentionally wounding to him. Most people in Steve's life are replaceable. But not Jony."

Jobs described to me his respect for Ive:

> The difference that Jony has made, not only at Apple but in the world, is huge. He is a wickedly intelligent person in all ways. He understands business concepts, marketing concepts. He picks stuff up just like that, click. He understands what we do at our core better than anyone. If I had a spiritual partner at Apple, it's Jony. Jony and I think up most of the products together and then pull others in and say, "Hey, what do you think about this?" He gets the big picture as well as the most infinitesimal details about each product. And he understands that Apple is a product company. He's not just a designer. That's why he works directly for me. He has more operational power than anyone else at Apple except me. There's no one who can tell him what to do, or to butt out. That's the way I set it up.

Like most designers, Ive enjoyed analyzing the philosophy and the step-by-step thinking that went into a particular design. For

Jobs, the process was more intuitive. He would point to models and sketches he liked and dump on the ones he didn't. Ive would then take the cues and develop the concepts Jobs blessed.

Ive was a fan of the German industrial designer Dieter Rams, who worked for the electronics firm Braun. Rams preached the gospel of "Less but better," *Weniger aber besser*, and likewise Jobs and Ive wrestled with each new design to see how much they could simplify it. Ever since Apple's first brochure proclaimed "Simplicity is the ultimate sophistication," Jobs had aimed for the simplicity that comes from conquering complexities, not ignoring them. "It takes a lot of hard work," he said, "to make something simple, to truly understand the underlying challenges and come up with elegant solutions."

In Ive, Jobs met his soul mate in the quest for true rather than surface simplicity. Sitting in his design studio, Ive described his philosophy:

> Why do we assume that simple is good? Because with physical products, we have to feel we can dominate them. As you bring order to complexity, you find a way to make the product defer to you. Simplicity isn't just a visual style. It's not just minimalism or the absence of clutter. It involves digging through the depth of the complexity. To be truly simple, you have to go really deep. For example, to have no screws on something, you can end up having a product that is so convoluted and so complex. The better way is to go deeper with the simplicity, to understand everything about it and how it's manufactured. You have to deeply understand the essence of a product in order to be able to get rid of the parts that are not essential.

That was the fundamental principle Jobs and Ive shared. Design was not just about what a product looked like on the surface. It had to reflect the product's essence. "In most people's vocabularies, design means veneer," Jobs told *Fortune* shortly after retaking the reins at Apple. "But to me, nothing could be further from the meaning of design. Design is the fundamental soul of a man-made creation that ends up expressing itself in successive outer layers."

As a result, the process of designing a product at Apple was integrally related to how it would be engineered and manufactured. Ive described one of Apple's Power Macs. "We wanted to get rid of anything other than what was absolutely essential," he said. "To do so required total collaboration between the designers, the product developers, the engineers, and the manufacturing team. We kept going back to the beginning, again and again. Do we need that part? Can we get it to perform the function of the other four parts?"

The connection between the design of a product, its essence, and its manufacturing was illustrated for Jobs and Ive when they were traveling in France and went into a kitchen supply store. Ive picked up a knife he admired, but then put it down in disappointment. Jobs did the same. "We both noticed a tiny bit of glue between the handle and the blade," Ive recalled. They talked about how the knife's good design had been ruined by the way it was manufactured. "We don't like to think of our knives as being glued together," Ive said. "Steve and I care about things like that, which ruin the purity and detract from the essence of something like a utensil, and we think alike about how products should be made to look pure and seamless."

At most other companies, engineering tends to drive design. The engineers set forth their specifications and requirements, and the designers then come up with cases and shells that will accommodate them. For Jobs, the process tended to work the other way. In the early days of Apple, Jobs had approved the design of the case of the original Macintosh, and the engineers had to make their boards and components fit.

After he was forced out, the process at Apple reverted to being engineer-driven. "Before Steve came back, engineers would say 'Here are the guts'—processor, hard drive—and then it would go to the designers to put it in a box," said Apple's marketing chief Phil Schiller. "When you do it that way, you come up with awful products." But when Jobs returned and forged his bond with Ive, the balance was again tilted toward the designers. "Steve kept impressing on us that the design was integral to what would make us great," said Schiller. "Design once again dictated the engineering, not just vice versa."

On occasion this could backfire, such as when Jobs and Ive insisted on using a solid piece of brushed aluminum for the edge of the iPhone 4 even when the engineers worried that it would compromise the antenna. But usually the distinctiveness of its designs—for the iMac, the iPod, the iPhone, and the iPad—would set Apple apart and lead to its triumphs in the years after Jobs returned.

Inside the Studio

The design studio where Jony Ive reigns, on the ground floor of Two Infinite Loop on the Apple campus, is shielded by tinted windows and a heavy clad, locked door. Just inside is a glass-booth reception desk where two assistants guard access. Even high-level Apple employees are not allowed in without special permission. Most of my interviews with Jony Ive for this book were held elsewhere, but one day in 2010 he arranged for me to spend an afternoon touring the studio and talking about how he and Jobs collaborate there.

To the left of the entrance is a bullpen of desks with young designers; to the right is the cavernous main room with six long steel tables for displaying and playing with works in progress. Beyond the main room is a computer-aided design studio, filled with workstations, that leads to a room with molding machines to turn what's on the screens into foam models. Beyond that is a robot-controlled spray-painting chamber to make the models look real. The look is sparse and industrial, with metallic gray décor. Leaves from the trees outside cast moving patterns of light and shadows on the tinted windows. Techno and jazz play in the background.

Almost every day when Jobs was healthy and in the office, he would have lunch with Ive and then wander by the studio in the afternoon. As he entered, he could survey the tables and see the products in the pipeline, sense how they fit into Apple's strategy, and inspect with his fingertips the evolving design of each. Usually it was just the two of them alone, while the other designers glanced up from their work but kept a respectful distance. If Jobs had a specific issue, he might call over the head of mechanical design or another of Ive's deputies. If something excited him or sparked some thoughts about corporate strategy, he might ask the chief operating officer Tim Cook or the marketing head Phil Schiller to come over and join them. Ive described the usual process:

> This great room is the one place in the company where you can look around and see everything we have in the works. When Steve comes in, he will sit at one of these tables. If we're working on a new iPhone, for example, he might grab a stool and start playing with different models and feeling them in his hands, remarking on which ones he likes best. Then he will graze by the other tables, just him and me, to see where all the other products are heading. He can get a sense of the sweep of the whole company, the iPhone and iPad, the iMac and laptop and everything we're considering. That helps him see where the company is spending its energy and how things connect. And he can ask, "Does doing this make sense, because over here is where we are growing a lot?" or questions like that. He gets to see things in relationship to each other, which is pretty hard to do in a big company. Looking at the models on these tables, he can see the future for the next three years.
>
> Much of the design process is a conversation, a back-and-forth as we walk around the tables and play with the models. He doesn't like to read complex drawings. He wants to see and feel a model. He's right. I get surprised when we make a model and then realize it's rubbish, even though based on the CAD [computer-aided design] renderings it looked great.
>
> He loves coming in here because it's calm and gentle. It's a paradise if you're a visual person. There are no formal design reviews, so there are no huge decision points. Instead, we can make the decisions fluid. Since we iterate every day and never have dumb-ass presentations, we don't run into major disagreements.

On this day Ive was overseeing the creation of a new European power plug and connector for the Macintosh. Dozens of foam models, each with the tiniest variation, have been cast and painted for inspection. Some would find it odd that the head of design would fret over something like this, but Jobs got involved as well. Ever since he had a special power supply made for the Apple II, Jobs has cared about not only the engineering but also the design of such parts. His name is listed on the patent for the white power brick used by the MacBook as well as its magnetic connector with its satisfying click. In fact he is listed as one of the inventors for 212 different Apple patents in the United States as of the beginning of 2011.

Ive and Jobs have even obsessed over, and patented, the packaging for various Apple products. U.S. patent D558572, for example, granted on January 1, 2008, is for the iPod Nano box, with four drawings showing how the device is nestled in a cradle when the box is opened. Patent D596485, issued on July 21, 2009, is for the iPhone packaging, with its sturdy lid and little glossy plastic tray inside.

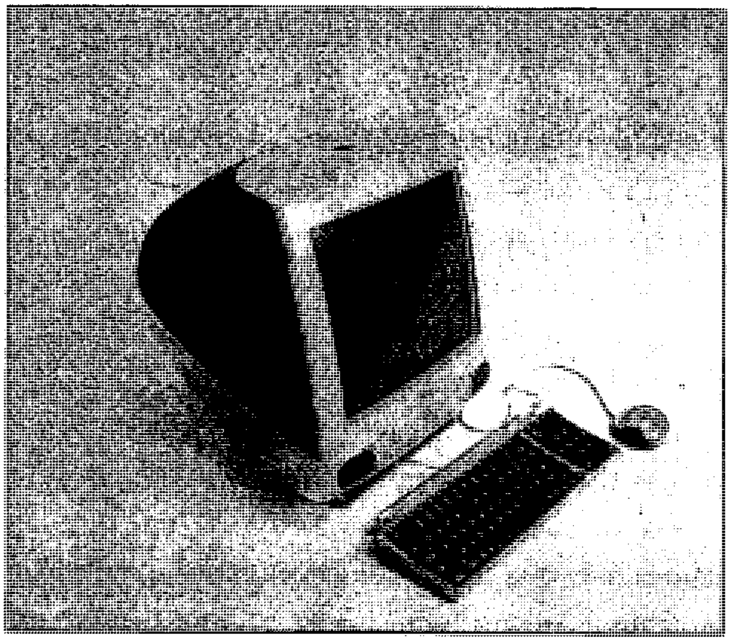
Early on, Mike Markkula had taught Jobs to "impute"—to understand that people *do* judge a book by its cover—and therefore to make sure all the trappings and packaging of Apple signaled that there was a beautiful gem inside. Whether it's an iPod Mini or a MacBook Pro, Apple customers know the feeling of opening up the well-crafted box and finding the product nestled in an inviting fashion. "Steve and I spend a lot of time on the packaging," said Ive. "I love the process of unpacking something. You design a ritual of unpacking to make the product feel special. Packaging can be theater, it can create a story."

Ive, who has the sensitive temperament of an artist, at times got upset with Jobs for taking too much credit, a habit that has bothered other colleagues over the years. His personal feelings for Jobs were so intense that at times he got easily bruised. "He will go through a process of looking at my ideas and say, 'That's no good. That's not very good. I like that one,' " Ive said. "And later I will be sitting in the audience and he will be talking about it as if it was his idea. I pay maniacal attention to where an idea comes from, and I even keep notebooks filled with my ideas. So it hurts when he takes credit for one of my designs." Ive also has bristled when outsiders portrayed Jobs as the only ideas guy at Apple. "That makes us vulnerable as a company," Ive said earnestly, his voice soft. But then he paused to recognize the role Jobs in fact played. "In so many other companies, ideas and great design get lost in the process," he said. "The ideas that come from me and my team would have been completely irrelevant, nowhere, if Steve hadn't been here to push us, work with us, and drive through all the resistance to turn our ideas into products."

CHAPTER TWENTY-SEVEN

THE iMAC

Hello (Again)



Back to the Future

The first great design triumph to come from the Jobs-Ive collaboration was the iMac, a desktop computer aimed at the home consumer market that was introduced in May 1998. Jobs had certain specifications. It should be an all-in-one product, with keyboard and monitor and computer ready to use right out of the box. It should have a distinctive design that made a brand statement. And it should sell for $1,200 or so. (Apple had no computer selling for less than $2,000 at the time.) "He told us to go back to the roots of the original 1984 Macintosh, an all-in-one consumer appliance," recalled Schiller. "That meant design and engineering had to work together."

The initial plan was to build a "network computer," a concept championed by Oracle's Larry Ellison, which was an inexpensive terminal without a hard drive that would mainly be used to connect to the Internet and other networks. But Apple's chief financial officer Fred Anderson led the push to make the product more robust by adding a disk drive so it could become a full-fledged desktop computer for the home. Jobs eventually agreed.

Jon Rubinstein, who was in charge of hardware, adapted the microprocessor and guts of the PowerMac G3, Apple's high-end professional computer, for use in the proposed new machine. It would have a hard drive and a tray for compact disks, but in a rather bold move, Jobs and Rubinstein decided not to include the usual floppy disk drive. Jobs quoted the hockey star Wayne Gretzky's maxim, "Skate where the puck's going, not where it's been." He was a bit ahead of his time, but eventually most computers eliminated floppy disks.

Ive and his top deputy, Danny Coster, began to sketch out futuristic designs. Jobs brusquely rejected the dozen foam models they initially produced, but Ive knew how to guide him gently. Ive agreed that none of them was quite right, but he pointed out one that had promise. It was curved, playful looking, and did not seem like an unmovable slab rooted to the table. "It has a sense that it's just arrived on your desktop or it's just about to hop off and go somewhere," he told Jobs.

By the next showing Ive had refined the playful model. This time Jobs, with his binary view of the world, raved that he loved it. He took the foam prototype and began carrying it around the headquarters with him, showing it in confidence to trusted lieutenants and board members. In its ads Apple was celebrating the glories of being able to think different, yet until now nothing had been proposed that was much different from existing computers. Finally, Jobs had something new.

The plastic casing that Ive and Coster proposed was sea-green blue, later named bondi blue after the color of the water at a beach in Australia, and it was translucent so that you could see through to the inside of the machine. "We were trying to convey a sense of the computer being changeable based on your needs, to be like a chameleon," said Ive. "That's why we liked the translucency. You could have color but it felt so unstatic. And it came across as cheeky."

Both metaphorically and in reality, the translucency connected the inner engineering of the computer to the outer design. Jobs had always insisted that the rows of chips on the circuit boards look neat, even though they would never be seen. Now they would be seen. The casing would make visible the care that had gone into making all components of the computer and fitting them together. The playful design would convey simplicity while also revealing the depths that true simplicity entails.

Even the simplicity of the plastic shell itself involved great complexity. Ive and his team worked with Apple's Korean manufacturers to perfect the process of making the cases, and they even went to a jelly bean factory to study how to make translucent colors look enticing. The cost of each case was more than $60 per unit, three times that of a regular computer case. Other companies would probably have demanded presentations and studies to show whether the translucent case would increase sales enough to justify the extra cost. Jobs asked for no such analysis.

Topping off the design was the handle nestled into the iMac. It was more playful and semiotic than it was functional. This was a desktop computer; not many people were really going to carry it around. But as Ive later explained:

> Back then, people weren't comfortable with technology. If you're scared of something, then you won't touch it. I could see my mum being scared to touch it. So I thought, if there's this handle on it, it makes a relationship possible. It's approachable. It's intuitive. It gives you permission to touch. It gives a sense of its deference to you. Unfortunately, manufacturing a recessed handle costs a lot of money. At the old Apple, I would have lost the argument. What was really great about Steve is that he saw it and said, "That's cool!" I didn't explain all the thinking, but he intuitively got it. He just knew that it was part of the iMac's friendliness and playfulness.

Jobs had to fend off the objections of the manufacturing engineers, supported by Rubinstein, who tended to raise practical cost considerations when faced with Ive's aesthetic desires and various design whims. "When we took it to the engineers," Jobs said, "they came up with thirty-eight reasons they couldn't do it. And I said, 'No, no, we're doing this.' And they said, 'Well, why?' And I said, 'Because I'm the CEO, and I think it can be done.' And so they kind of grudgingly did it."

Jobs asked Lee Clow and Ken Segall and others from the TBWA\Chiat\Day ad team to fly up to see what he had in the works. He brought them into the guarded design studio and dramatically unveiled Ive's translucent teardrop-shaped design, which looked like something from *The Jetsons*, the animated TV show set in the future. For a moment they were taken aback. "We were pretty shocked, but we couldn't be frank," Segall recalled. "We were really thinking, 'Jesus, do they know what they are doing?' It was so radical." Jobs asked them to suggest names. Segall came back with five options, one of them "iMac." Jobs didn't like any of them at first, so Segall came up with another list a week later, but he said that the agency still preferred "iMac." Jobs replied, "I don't hate it this week, but I still don't like it." He tried silk-screening it on some of the prototypes, and the name grew on him. And thus it became the iMac.

As the deadline for completing the iMac drew near, Jobs's legendary temper reappeared in force, especially when he was confronting manufacturing issues. At one product review meeting, he learned that the process was going slowly. "He did one of his displays of awesome fury, and the fury was absolutely pure," recalled Ive. He went around the table assailing everyone, starting with Rubinstein. "You know we're trying to save the company here," he shouted, "and you guys are screwing it up!"

Like the original Macintosh team, the iMac crew staggered to completion just in time for the big announcement. But not before Jobs had one last explosion. When it came time to rehearse for the launch presentation, Rubinstein cobbled together two working prototypes. Jobs had not seen the final product before, and when he looked at it onstage he saw a button on the front, under the display. He pushed it and the CD tray opened. "What the fuck is this?!?" he asked, though not as politely. "None of us said anything," Schiller recalled, "because he obviously knew what a CD tray was." So Jobs continued to rail. It was supposed to have a clean CD slot, he insisted, referring to the elegant slot drives that were already to be found in upscale cars. "Steve, this is exactly the drive I showed you when we talked about the components," Rubinstein explained. "No, there was never a tray, just a slot," Jobs insisted. Rubinstein didn't back down. Jobs's fury didn't abate. "I almost started crying, because it was too late to do anything about it," Jobs later recalled.

They suspended the rehearsal, and for a while it seemed as if Jobs might cancel the entire product launch. "Ruby looked at me as if to say, 'Am I crazy?' " Schiller recalled. "It was my first product launch with Steve and the first time I saw his mind-set of 'If it's not right we're not launching it.' " Finally, they agreed to replace the tray with a slot drive for the next version of the iMac. "I'm only going to go ahead with the launch if you promise we're going to go to slot mode as soon as possible," Jobs said tearfully.

There was also a problem with the video he planned to show. In it, Jony Ive is shown describing his design thinking and asking, "What computer would the Jetsons have had? It was like, the future yesterday." At that moment there was a two-second snippet from the cartoon show, showing Jane Jetson looking at a video screen, followed by another two-second clip of the Jetsons giggling by a Christmas tree. At a rehearsal a production assistant told Jobs they would have to remove the clips because Hanna-Barbera had not given permission to use them. "Keep it in," Jobs barked at him. The assistant explained that there were rules against that. "I don't care," Jobs said. "We're using it." The clip stayed in.

Lee Clow was preparing a series of colorful magazine ads, and when he sent Jobs the page proofs he got an outraged phone call in response. The blue in the ad, Jobs insisted, was different from that of the iMac. "You guys don't know what you're doing!" Jobs shouted. "I'm going to get someone else to do the ads, because this is fucked up." Clow argued back. Compare them, he said. Jobs, who was not in the office, insisted he was right and continued to shout. Eventually Clow got him to sit down with the original photographs. "I finally proved to him that the blue was the blue was the blue." Years later, on a Steve Jobs discussion board on the website Gawker, the following tale appeared from someone who had worked at the Whole Foods store in Palo Alto a few blocks from Jobs's home: "I was shagging carts one afternoon when I saw this silver Mercedes parked in a handicapped spot. Steve Jobs was inside screaming at his car phone. This was right before the first iMac was unveiled and I'm pretty sure I could make out, 'Not. Fucking. Blue. Enough!!!' "

As always, Jobs was compulsive in preparing for the dramatic unveiling. Having stopped one rehearsal because he was angry about the CD drive tray, he stretched out the other rehearsals to make sure the show would be stellar. He repeatedly went over the climactic moment when he would walk across the stage and proclaim, "Say hello to the new iMac." He wanted the lighting to be perfect so that the translucence of the new machine would be vivid. But after a few run-throughs he was still unsatisfied, an echo of his obsession with stage lighting that Sculley had witnessed at the rehearsals for the original 1984 Macintosh launch. He ordered the lights to be brighter and come on earlier, but that still didn't please him. So he jogged down the auditorium aisle and slouched into a center seat, draping his legs over the seat in front. "Let's keep doing it till we get it right, okay?" he said. They made another attempt. "No, no," Jobs complained. "This isn't working at all." The next time, the lights were bright enough, but they came on too late. "I'm getting tired of asking about this," Jobs growled. Finally, the iMac shone just right. "Oh! Right there! That's great!" Jobs yelled.

A year earlier Jobs had ousted Mike Markkula, his early mentor and partner, from the board. But he was so proud of what he had wrought with the new iMac, and so sentimental about its connection to the original Macintosh, that he invited Markkula to Cupertino for a private preview. Markkula was impressed. His only objection was to the new mouse that Ive had designed. It looked like a hockey puck, Markkula said, and people would hate it. Jobs disagreed, but Markkula was right. Otherwise the machine had turned out to be, as had its predecessor, insanely great.

The Launch, May 6, 1998

With the launch of the original Macintosh in 1984, Jobs had created a new kind of theater: the product debut as an epochal event, climaxed by a let-there-be-light moment in which the skies part, a light shines down, the angels sing, and a chorus of the chosen faithful sings "Hallelujah." For the grand unveiling of the product that he hoped would save Apple and again transform personal computing, Jobs symbolically chose the Flint Auditorium of De Anza Community College in Cupertino, the same venue he had used in 1984. He would be pulling out all the stops in order to dispel doubts, rally the troops, enlist support in the developers' community, and jump-start the marketing of the new machine. But he was also doing it because he enjoyed playing impresario. Putting on a great show piqued his passions in the same way as putting out a great product.

Displaying his sentimental side, he began with a graceful shout-out to three people he had invited to be up front in the audience. He had become estranged from all of them, but now he wanted them rejoined. "I started the company with Steve Wozniak in my parents' garage, and Steve is here today," he said, pointing him out and prompting applause. "We were joined by Mike Markkula and soon after that our first president, Mike Scott," he continued. "Both of those folks are in the audience today. And none of us would be here without these three guys." His eyes misted for a moment as the applause again built. Also in the audience were Andy Hertzfeld and most of the original Mac team. Jobs gave them a smile. He believed he was about to do them proud.

After showing the grid of Apple's new product strategy and going through some slides about the new computer's performance, he was ready to unveil his new baby. "This is what computers look like today," he said as a picture of a beige set of boxy components and monitor was projected on the big screen behind him. "And I'd like to take the privilege of showing you what they are going to look like from today on." He pulled the cloth from the table at center stage to reveal the new iMac, which gleamed and sparkled as the lights came up on cue. He pressed the mouse, and as at the launch of the original Macintosh, the screen flashed with fast-paced images of all the wondrous things the computer could do. At the end, the word "hello" appeared in the same playful script that had adorned the 1984 Macintosh, this time with the word "again" below it in parentheses: *Hello (again).* There was thunderous applause. Jobs stood back and proudly gazed at his new Macintosh. "It looks like it's from another planet," he said, as the audience laughed. "A good planet. A planet with better designers."

Once again Jobs had produced an iconic new product, this one a harbinger of a new millennium. It fulfilled the promise of "Think Different." Instead of beige boxes and monitors with a welter of cables and a bulky setup manual, here was a friendly and spunky appliance, smooth to the touch and as pleasing to the eye as a robin's egg. You could grab its cute little handle and lift it out of the elegant white box and plug it right into a wall socket. People who had been afraid of computers now wanted one, and they wanted to put it in a room where others could admire and perhaps covet it. "A piece of hardware that blends sci-fi shimmer with the kitsch whimsy of a cocktail umbrella," Steven Levy wrote in *Newsweek*, "it is not only the coolest-looking computer introduced in years, but a chest-thumping statement that Silicon Valley's original dream company is no longer somnambulant." *Forbes* called it "an industry-altering success," and John Sculley later came out of exile to gush, "He has implemented the same simple strategy that made Apple so successful 15 years ago: make hit products and promote them with terrific marketing."

Carping was heard from only one familiar corner. As the iMac garnered kudos, Bill Gates assured a gathering of financial analysts visiting Microsoft that this would be a passing fad. "The one thing Apple's providing now is leadership in colors," Gates said as he pointed to a Windows-based PC that he jokingly had painted red. "It won't take long for us to catch up with that, I don't think." Jobs was furious, and he told a reporter that Gates, the man he had publicly decried for being completely devoid of taste, was clueless about what made the iMac so much more appealing than other computers. "The thing that our competitors are missing is that they think it's about fashion, and they think it's about surface appearance," he said. "They say, We'll slap a little color on this piece of junk computer, and we'll have one, too."

The iMac went on sale in August 1998 for $1,299. It sold 278,000 units in its first six weeks, and would sell 800,000 by the end of the year, making it the fastest-selling computer in Apple history. Most notably, 32% of the sales went to people who were buying a computer for the first time, and another 12% to people who had been using Windows machines.

Ive soon came up with four new juicy-looking colors, in addition to bondi blue, for the iMacs. Offering the same computer in five colors would of course create huge challenges for manufacturing, inventory, and distribution. At most companies, including even the old Apple, there would have been studies and meetings to look at the costs and benefits. But when Jobs looked at the new colors, he got totally psyched and summoned other executives over to the design studio. "We're going to do all sorts of colors!" he told them excitedly. When they left, Ive looked at his team in amazement. "In most places that decision would have taken months," Ive recalled. "Steve did it in a half hour."

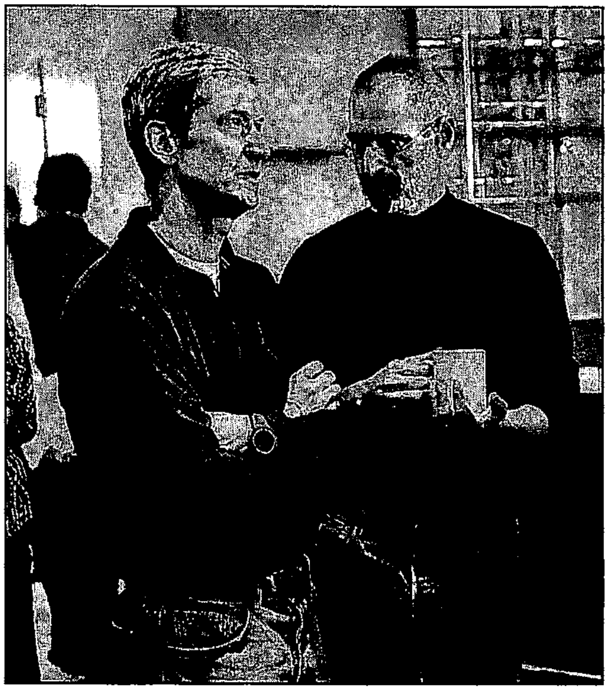
There was one other important refinement that Jobs wanted for the iMac: getting rid of that detested CD tray. "I'd seen a slot-load drive on a very high-end Sony stereo," he said, "so I went to the drive manufacturers and got them to do a slot-load drive for us for the version of the iMac we did nine months later." Rubinstein tried to argue him out of the change. He predicted that new drives would come along that could burn music onto CDs rather than merely play them, and they would be available in tray form before they were made to work in slots. "If you go to slots, you will always be behind on the technology," Rubinstein argued.

"I don't care, that's what I want," Jobs snapped back. They were having lunch at a sushi bar in San Francisco, and Jobs insisted that they continue the conversation over a walk. "I want you to do the slot-load drive for me as a personal favor," Jobs asked. Rubinstein agreed, of course, but he turned out to be right. Panasonic came out with a CD drive that could rip and burn music, and it was available first for computers that had old-fashioned tray loaders. The effects of this would ripple over the next few years: It would cause Apple to be slow in catering to users who wanted to rip and burn their own music, but that would then force Apple to be imaginative and bold in finding a way to leapfrog over its competitors when Jobs finally realized that he had to get into the music market.

CHAPTER TWENTY-EIGHT

CEO

Still Crazy after All These Years



Tim Cook and Jobs, 2007

Tim Cook

When Steve Jobs returned to Apple and produced the "Think Different" ads and the iMac in his first year, it confirmed what most people already knew: that he could be creative and a visionary. He had shown that during his first round at Apple. What was less clear was whether he could run a company. He had definitely *not* shown that during his first round.

Jobs threw himself into the task with a detail-oriented realism that astonished those who were used to his fantasy that the rules of this universe need not apply to him. "He became a manager, which is different from being an executive or visionary, and that pleasantly surprised me," recalled Ed Woolard, the board chair who lured him back.

His management mantra was "Focus." He eliminated excess product lines and cut extraneous features in the new operating system software that Apple was developing. He let go of his control-freak desire to manufacture products in his own factories and instead outsourced the making of everything from the circuit boards to the finished computers. And he enforced on Apple's suppliers a rigorous discipline. When he took over, Apple had more than two months' worth of inventory sitting in warehouses, more than any other tech company. Like eggs and milk, computers have a short shelf life, so this amounted to at least a $500 million hit to profits. By early 1998 he had halved that to a month.

Jobs's successes came at a cost, since velvety diplomacy was still not part of his repertoire. When he decided that a division of Airborne Express wasn't delivering spare parts quickly enough, he ordered an Apple manager to break the contract. When the manager protested that doing so could lead to a lawsuit, Jobs replied, "Just tell them if they fuck with us, they'll never get another fucking dime from this company, ever." The manager quit, there was a lawsuit, and it took a year to resolve. "My stock options would be worth $10 million had I stayed," the manager said, "but I knew I couldn't have stood it—and he'd have fired me anyway." The new distributor was ordered to cut inventory 75%, and did. "Under Steve Jobs, there's zero tolerance for not performing," its CEO said. At another point, when VLSI Technology was having trouble delivering enough chips on time, Jobs stormed into a meeting and started shouting that they were "fucking dickless assholes." The company ended up getting the chips to Apple on time, and its executives made jackets that boasted on the back, "Team FDA."

After three months of working under Jobs, Apple's head of operations decided he could not bear the pressure, and he quit. For almost a year Jobs ran operations himself, because all the prospects he interviewed "seemed like they were old-wave manufacturing people," he recalled. He wanted someone who could build just-in-time factories and supply chains, as Michael Dell had done. Then, in 1998, he met Tim Cook, a courtly thirty-seven-year-old procurement and supply chain manager at Compaq Computers, who not only would become his operations manager but would grow into an indispensable backstage partner in running Apple. As Jobs recalled:

> Tim Cook came out of procurement, which is just the right background for what we needed. I realized that he and I saw things exactly the same way. I had visited a lot of just-in-time factories in Japan, and I'd built one for the Mac and at NeXT. I knew what I wanted, and I met Tim, and he wanted the same thing. So we started to work together, and before long I trusted him to know exactly what to do. He had the same vision I did, and we could interact at a high strategic level, and I could just forget about a lot of things unless he came and pinged me.

Cook, the son of a shipyard worker, was raised in Robertsdale, Alabama, a small town between Mobile and Pensacola a half hour from the Gulf Coast. He majored in industrial engineering at Auburn, got a business degree at Duke, and for the next twelve years worked for IBM in the Research Triangle of North Carolina. When Jobs interviewed him, he had recently taken a job at Compaq. He had always been a very logical engineer, and Compaq then seemed a more sensible career option, but he was snared by Jobs's aura. "Five minutes into my initial interview with Steve, I wanted to throw caution and logic to the wind and join Apple," he later said. "My intuition told me that joining Apple would be a once-in-a-lifetime opportunity to work for a creative genius." And so he did. "Engineers are taught to make a decision analytically, but there are times when relying on gut or intuition is most indispensable."

At Apple his role became implementing Jobs's intuition, which he accomplished with a quiet diligence. Never married, he threw himself into his work. He was up most days at 4:30 sending emails, then spent an hour at the gym, and was at his desk shortly after 6. He scheduled Sunday evening conference calls to prepare for each week ahead. In a company that was led by a CEO prone to tantrums and withering blasts, Cook commanded situations with a calm demeanor, a soothing Alabama accent, and silent stares. "Though he's capable of mirth, Cook's default facial expression is a frown, and his humor is of the dry variety," Adam Lashinsky wrote in *Fortune.* "In meetings he's known for long, uncomfortable pauses, when all you hear is the sound of his tearing the wrapper off the energy bars he constantly eats."

At a meeting early in his tenure, Cook was told of a problem with one of Apple's Chinese suppliers. "This is really bad," he said. "Someone should be in China driving this." Thirty minutes later he looked at an operations executive sitting at the table and unemotionally asked, "Why are you still here?" The executive stood up, drove directly to the San Francisco airport, and bought a ticket to China. He became one of Cook's top deputies.

Cook reduced the number of Apple's key suppliers from a hundred to twenty-four, forced them to cut better deals to keep the business, convinced many to locate next to Apple's plants, and closed ten of the company's nineteen warehouses. By reducing the places where inventory could pile up, he reduced inventory. Jobs had cut inventory from two months' worth of product down to one by early 1998. By September of that year, Cook had gotten it down to six days. By the following September, it was down to an amazing two days' worth. In addition, he cut the production process for making an Apple computer from four months to two. All of this not only saved money, it also allowed each new computer to have the very latest components available.

Mock Turtlenecks and Teamwork

On a trip to Japan in the early 1980s, Jobs asked Sony's chairman, Akio Morita, why everyone in his company's factories wore uniforms. "He looked very ashamed and told me that after the war, no one had any clothes, and companies like Sony had to give their workers something to wear each day," Jobs recalled. Over the years the uniforms developed their own signature style, especially at companies such as Sony, and it became a way of bonding workers to the company. "I decided that I wanted that type of bonding for Apple," Jobs recalled.

Sony, with its appreciation for style, had gotten the famous designer

Issey Miyake to create one of its uniforms. It was a jacket made of ripstop nylon with sleeves that could unzip to make it a vest. "So I called Issey and asked him to design a vest for Apple," Jobs recalled. "I came back with some samples and told everyone it would be great if we would all wear these vests. Oh man, did I get booed off the stage. Everybody hated the idea."

In the process, however, he became friends with Miyake and would visit him regularly. He also came to like the idea of having a uniform for himself, because of both its daily convenience (the rationale he claimed) and its ability to convey a signature style. "So I asked Issey to make me some of his black turtlenecks that I liked, and he made me like a hundred of them." Jobs noticed my surprise when he told this story, so he gestured to them stacked up in the closet. "That's what I wear," he said. "I have enough to last for the rest of my life."

Despite his autocratic nature—he never worshipped at the altar of consensus—Jobs worked hard to foster a culture of collaboration at Apple. Many companies pride themselves on having few meetings. Jobs had many: an executive staff session every Monday, a marketing strategy session all Wednesday afternoon, and endless product review sessions. Still allergic to PowerPoints and formal presentations, he insisted that the people around the table hash out issues from various vantages and the perspectives of different departments.

Because he believed that Apple's great advantage was its integration of the whole widget—from design to hardware to software to content—he wanted all departments at the company to work together in parallel. The phrases he used were "deep collaboration" and "concurrent engineering." Instead of a development process in which a product would be passed sequentially from engineering to design to manufacturing to marketing and distribution, these various departments collaborated simultaneously. "Our method was to develop integrated products, and that meant our process had to be integrated and collaborative," Jobs said.

This approach also applied to key hires. He would have candidates meet the top leaders—Cook, Tevanian, Schiller, Rubinstein, Ive—rather than just the managers of the department where they wanted to work. "Then we all get together without the person and talk about whether they'll fit in," Jobs said. His goal was to be vigilant against "the bozo explosion" that leads to a company's being larded with second-rate talent:

> For most things in life, the range between best and average is 30% or so. The best airplane flight, the best meal, they may be 30% better than your average one. What I saw with Woz was somebody who was fifty times better than the average engineer. He could have meetings in his head. The Mac team was an attempt to build a whole team like that, A players. People said they wouldn't get along, they'd hate working with each other. But I realized that A players like to work with A players, they just didn't like working with C players. At Pixar, it was a whole company of A players. When I got back to Apple, that's what I decided to try to do. You need to have a collaborative hiring process. When we hire someone, even if they're going to be in marketing, I will have them talk to the design folks and the engineers. My role model was J. Robert Oppenheimer. I read about the type of people he sought for the atom bomb project. I wasn't nearly as good as he was, but that's what I aspired to do.

The process could be intimidating, but Jobs had an eye for talent. When they were looking for people to design the graphical interface for Apple's new operating system, Jobs got an email from a young man and invited him in. The applicant was nervous, and the meeting did not go well. Later that day Jobs bumped into him, dejected, sitting in the lobby. The guy asked if he could just show him one of his ideas, so Jobs looked over his shoulder and saw a little demo, using Adobe Director, of a way to fit more icons in the dock at the bottom of a screen. When the guy moved the cursor over the icons crammed into the dock, the cursor mimicked a magnifying glass and made each icon balloon bigger. "I said, 'My God,' and hired him on the spot," Jobs recalled. The feature became a lovable part of Mac OSX, and the designer went on to design such things as inertial scrolling for multi-touch screens (the delightful feature that makes the screen keep gliding for a moment after you've finished swiping).

Jobs's experiences at NeXT had matured him, but they had not mellowed him much. He still had no license plate on his Mercedes, and he still parked in the handicapped spaces next to the front door, sometimes straddling two slots. It became a running gag. Employees made signs saying, "Park Different," and someone painted over the handicapped wheelchair symbol with a Mercedes logo.

People were allowed, even encouraged, to challenge him, and sometimes he would respect them for it. But you had to be prepared for him to attack you, even bite your head off, as he processed your ideas. "You never win an argument with him at the time, but sometimes you eventually win," said James Vincent, the creative young adman who worked with Lee Clow. "You propose something and he declares, 'That's a stupid idea,' and later he comes back and says, 'Here's what we're going to do.' And you want to say, 'That's what I told you two weeks ago and you said that's a stupid idea.' But you can't do that. Instead you say, 'That's a great idea, let's do that.' "

People also had to put up with Jobs's occasional irrational or incorrect assertions. To both family and colleagues, he was apt to declare, with great conviction, some scientific or historical fact that had scant relationship to reality. "There can be something he knows absolutely nothing about, and because of his crazy style and utter conviction, he can convince people that he knows what he's talking about," said Ive, who described the trait as weirdly endearing. Yet with his eye for detail, Jobs sometimes correctly pounced on tiny things others had missed. Lee Clow recalled showing Jobs a cut of a commercial, making some minor changes he requested, and then being assaulted with a tirade about how the ad had been completely destroyed. "He discovered we had cut two extra frames, something so fleeting it was nearly impossible to notice," said Clow. "But he wanted to be sure that an image hit at the exact moment as a beat of the music, and he was totally right."

From iCEO to CEO

Ed Woolard, his mentor on the Apple board, pressed Jobs for more than two years to drop the *interim* in front of his CEO title. Not only was Jobs refusing to commit himself, but he was baffling everyone by taking only $1 a year in pay and no stock options. "I make 50 cents for showing up," he liked to joke, "and the other 50 cents is based on performance." Since his return in July 1997, Apple stock had gone from just under $14 to just over $102 at the peak of the Internet bubble at the beginning of 2000. Woolard had begged him to take at least a modest stock grant back in 1997, but Jobs had declined, saying, "I don't want the people I work with at Apple to think I am coming back to get rich." Had he accepted that modest grant, it would have been worth $400 million. Instead he made $2.50 during that period.

The main reason he clung to his *interim* designation was a sense of uncertainty about Apple's future. But as 2000 approached, it was clear that Apple had rebounded, and it was because of him. He took a long walk with Laurene and discussed what to most people by now seemed a formality but to him was still a big deal. If he dropped the *interim* designation, Apple could be the base for all the things he envisioned, including the possibility of getting Apple into products beyond computers. He decided to do so.

Woolard was thrilled, and he suggested that the board was willing to give him a massive stock grant. "Let me be straight with you," Jobs replied. "What I'd rather have is an airplane. We just had a third kid. I don't like flying commercial. I like to take my family to Hawaii. When I go east, I'd like to have pilots I know." He was never the type of person who could display grace and patience in a commercial airplane or terminal, even before the days of the TSA. Board member Larry Ellison, whose plane Jobs sometimes used (Apple paid $102,000 to Ellison in 1999 for Jobs's use of it), had no qualms. "Given what he's accomplished, we should give him five airplanes!" Ellison argued. He later said, "It was the perfect thank-you gift for Steve, who had saved Apple and gotten nothing in return."

So Woolard happily granted Jobs's wish, with a Gulfstream V, and also offered him fourteen million stock options. Jobs gave an unexpected response. He wanted more: twenty million options. Woolard was baffled and upset. The board had authority from the stockholders to give out only fourteen million. "You said you didn't want any, and we gave you a plane, which you did want," Woolard said.

"I hadn't been insisting on options before," Jobs replied, "but you suggested it could be up to 5% of the company in options, and that's what I now want." It was an awkward tiff in what should have been a celebratory period. In the end, a complex solution was worked out that granted him ten million shares in January 2000 that were valued at the current price but timed to vest as if granted in 1997, plus another grant due in 2001. Making matters worse, the stock fell with the burst of the Internet bubble. Jobs never exercised the options, and at the end of 2001 he asked that they be replaced by a new grant with a lower strike price. The wrestling over options would come back to haunt the company.

Even if he didn't profit from the options, at least he got to enjoy the airplane. Not surprisingly he fretted over how the interior would be designed. It took him more than a year. He used Ellison's plane as a starting point and hired his designer. Pretty soon he was driving her crazy. For example, Ellison's had a door between cabins with an open button and a close button. Jobs insisted that his have a single button that toggled. He didn't like the polished stainless steel of the buttons, so he had them replaced with brushed metal ones. But in the end he got the plane he wanted, and he loved it. "I look at his airplane and mine, and everything he changed was better," said Ellison.

At the January 2000 Macworld in San Francisco, Jobs rolled out the new Macintosh operating system, OSX, which used some of the software that Apple had bought from NeXT three years earlier. It was fitting, and not entirely coincidental, that he was willing to incorporate himself back at Apple at the same moment as the NeXT OS was incorporated into Apple's. Avie Tevanian had taken the UNIX-related Mach kernel of the NeXT operating system and turned it into the Mac OS kernel, known as Darwin. It offered protected memory, advanced networking, and preemptive multitasking. It was precisely what the Macintosh needed, and it would be the foundation of the Mac OS henceforth. Some critics, including Bill Gates, noted that Apple ended up not adopting the entire NeXT operating system. There's some truth to that, because Apple decided not to leap into a completely new system but instead to evolve the existing one. Application software written for the old Macintosh system was generally compatible with or easy to port to the new one, and a Mac user who upgraded would notice a lot of new features but not a whole new interface.

The fans at Macworld received the news with enthusiasm, of course, and they especially cheered when Jobs showed off the dock and how the icons in it could be magnified by passing the cursor over them. But the biggest applause came for the announcement he reserved for his "Oh, and one more thing" coda. He spoke about his duties at both Pixar and Apple, and said that he had become comfortable that the situation could work. "So I am pleased to announce today that I'm going to drop the interim title," he said with a big smile. The crowd jumped to its feet, screaming as if the Beatles had reunited. Jobs bit his lip, adjusted his wire rims, and put on a graceful show of humility. "You guys are making me feel funny now. I get to come to work every day and work with the most talented people on the planet, at Apple and Pixar. But these jobs are team sports. I accept your thanks on behalf of everybody at Apple."

CHAPTER TWENTY-NINE

APPLE STORES

Genius Bars and Siena Sandstone

New York's Fifth Avenue store

The Customer Experience

Jobs hated to cede control of anything, especially when it might affect the customer experience. But he faced a problem. There was one part of the process he didn't control: the experience of buying an Apple product in a store.

The days of the Byte Shop were over. Industry sales were shifting from local computer specialty shops to megachains and big box stores, where most clerks had neither the knowledge nor the incentive to explain the distinctive nature of Apple products. "All that the salesman cared about was a $50 spiff," Jobs said. Other computers were pretty generic, but Apple's had innovative features and a higher price tag. He didn't want an iMac to sit on a shelf between a Dell and a Compaq while an uninformed clerk recited the specs of each. "Unless we could find ways to get our message to customers at the store, we were screwed."

In great secrecy, Jobs began in late 1999 to interview executives who might be able to develop a string of Apple retail stores. One of the candidates had a passion for design and the boyish enthusiasm of a natural-born retailer: Ron Johnson, the vice president for merchandising at Target, who was responsible for launching distinctive-looking products, such as a teakettle designed by Michael Graves. "Steve is very easy to talk to," said Johnson in recalling their first meeting. "All of a sudden there's a torn pair of jeans and turtleneck, and he's off and running about why he needed great stores. If Apple is going to succeed, he told me, we're going to win on innovation. And you can't win on innovation unless you have a way to communicate to customers."

When Johnson came back in January 2000 to be interviewed again, Jobs suggested that they take a walk. They went to the sprawling 140-store Stanford Shopping Mall at 8:30 a.m. The stores weren't open yet, so they walked up and down the entire mall repeatedly and discussed how it was organized, what role the big department stores played relative to the other stores, and why certain specialty shops were successful.

They were still walking and talking when the stores opened at 10, and they went into Eddie Bauer. It had an entrance off the mall and another off the parking lot. Jobs decided that Apple stores should have only one entrance, which would make it easier to control the experience. And the Eddie Bauer store, they agreed, was too long and narrow. It was important that customers intuitively grasp the layout of a store as soon as they entered.

There were no tech stores in the mall, and Johnson explained why: The conventional wisdom was that a consumer, when making a major and infrequent purchase such as a computer, would be willing to drive to a less convenient location, where the rent would be cheaper. Jobs disagreed. Apple stores should be in malls and on Main Streets—in areas with a lot of foot traffic, no matter how expensive. "We may not be able to get them to drive ten miles to check out our products, but we can get them to walk ten feet," he said. The Windows users, in particular, had to be ambushed: "If they're passing by, they will drop in out of curiosity, if we make it inviting enough, and once we get a chance to show them what we have, we will win."

Johnson said that the size of a store signaled the importance of the brand. "Is Apple as big of a brand as the Gap?" he asked. Jobs said it was much bigger. Johnson replied that its stores should therefore be bigger. "Otherwise you won't be relevant." Jobs described Mike Markkula's maxim that a good company must "impute"—it must convey its values and importance in everything it does, from packaging to marketing. Johnson loved it. It definitely applied to a company's stores. "The store will become the most powerful physical expression of the brand," he predicted. He said that when he was young he had gone to the wood-paneled, art-filled mansion-like store that Ralph Lauren had created at Seventy-second and Madison in Manhattan. "Whenever I buy a polo shirt, I think of that mansion, which was a physical expression of Ralph's ideals," Johnson said. "Mickey Drexler did that with the Gap. You couldn't think of a Gap product without thinking of the great Gap store with the clean space and wood floors and white walls and folded merchandise."

When they finished, they drove to Apple and sat in a conference room playing with the company's products. There weren't many, not enough to fill the shelves of a conventional store, but that was an advantage. The type of store they would build, they decided, would benefit from having few products. It would be minimalist and airy and offer a lot of places for people to try out things. "Most people don't know Apple products," Johnson said. "They think of Apple as a cult. You want to move from a cult to something cool, and having an awesome store where people can try things will help that." The stores would impute the ethos of Apple products: playful, easy, creative, and on the bright side of the line between hip and intimidating.

The Prototype

When Jobs finally presented the idea, the board was not thrilled. Gateway Computers was going down in flames after opening suburban stores, and Jobs's argument that his would do better because they would be in more expensive locations was not, on its face, reassuring. "Think different" and "Here's to the crazy ones" made for good advertising slogans, but the board was hesitant to make them guidelines for corporate strategy. "I'm scratching my head and thinking this is crazy," recalled Art Levinson, the CEO of Genentech who joined the Apple board in 2000. "We are a small company, a marginal player. I said that I'm not sure I can support something like this." Ed Woolard was also dubious. "Gateway has tried this and failed, while Dell is selling direct to consumers without stores and succeeding," he argued. Jobs was not appreciative of too much pushback from the board. The last time that happened, he had replaced most of the members. This time, for personal reasons as well as being tired of playing tug-of-war with Jobs, Woolard decided to step down. But before he did, the board approved a trial run of four Apple stores.

Jobs did have one supporter on the board. In 1999 he had recruited the Bronx-born retailing prince Millard "Mickey" Drexler, who as CEO of Gap had transformed a sleepy chain into an icon of American casual culture. He was one of the few people in the world who were as successful and savvy as Jobs on matters of design, image, and consumer yearnings. In addition, he had insisted on end-to-end control: Gap stores sold only Gap products, and Gap products were sold almost exclusively in Gap stores. "I left the department store business because I couldn't stand not controlling my own product, from how it's manufactured to how it's sold," Drexler said. "Steve is just that way, which is why I think he recruited me."

Drexler gave Jobs a piece of advice: Secretly build a prototype of the store near the Apple campus, furnish it completely, and then hang out there until you feel comfortable with it. So Johnson and Jobs rented a vacant warehouse in Cupertino. Every Tuesday for six months, they convened an all-morning brainstorming session there, refining their retailing philosophy as they walked the space. It was the store equivalent of Ive's design studio, a haven where Jobs, with his visual approach, could come up with innovations by touching and seeing the options as they evolved. "I loved to wander over there on my own, just checking it out," Jobs recalled.

Sometimes he made Drexler, Larry Ellison, and other trusted friends come look. "On too many weekends, when he wasn't making me watch new scenes from *Toy Story*, he made me go to the warehouse and look at the mockups for the store," Ellison said. "He was obsessed by every detail of the aesthetic and the service experience. It got to the point where I said, 'Steve I'm not coming to see you if you're going to make me go to the store again.' "

Ellison's company, Oracle, was developing software for the handheld checkout system, which avoided having a cash register counter. On each visit Jobs prodded Ellison to figure out ways to streamline the process by eliminating some unnecessary step, such as handing over the credit card or printing a receipt. "If you look at the stores and the products, you will see Steve's obsession with beauty as simplicity—this Bauhaus aesthetic and wonderful minimalism, which goes all the way to the checkout process in the stores," said Ellison. "It means the absolute minimum number of steps. Steve gave us the exact, explicit recipe for how he wanted the checkout to work."

When Drexler came to see the prototype, he had some criticisms: "I thought the space was too chopped up and not clean enough. There were too many distracting architectural features and colors." He emphasized that a customer should be able to walk into a retail space and, with one sweep of the eye, understand the flow. Jobs agreed that simplicity and lack of distractions were keys to a great store, as they were to a product. "After that, he nailed it," said Drexler. "The vision he had was complete control of the entire experience of his product, from how it was designed and made to how it was sold."

In October 2000, near what he thought was the end of the process, Johnson woke up in the middle of a night before one of the Tuesday meetings with a painful thought: They had gotten something fundamentally wrong. They were organizing the store around each of Apple's main product lines, with areas for the PowerMac, iMac, iBook, and PowerBook. But Jobs had begun developing a new concept: the computer as a hub for all your digital activity. In other words, your computer might handle video and pictures from your cameras, and perhaps someday your music player and songs, or your books and magazines. Johnson's predawn brainstorm was that the stores should organize displays not just around the company's four lines of computers, but also around things people might want to do. "For example, I thought there should be a movie bay where we'd have various Macs and PowerBooks running iMovie and showing how you can import from your video camera and edit."

Johnson arrived at Jobs's office early that Tuesday and told him about his sudden insight that they needed to reconfigure the stores. He had heard tales of his boss's intemperate tongue, but he had not yet felt its lash—until now. Jobs erupted. "Do you know what a big change this is?" he yelled. "I've worked my ass off on this store for six months, and now you want to change everything!" Jobs suddenly got quiet. "I'm tired. I don't know if I can design another store from scratch."

Johnson was speechless, and Jobs made sure he remained so. On the ride to the prototype store, where people had gathered for the Tuesday meeting, he told Johnson not to say a word, either to him or to the other members of the team. So the seven-minute drive proceeded in silence. When they arrived, Jobs had finished processing the information. "I knew Ron was right," he recalled. So to Johnson's surprise, Jobs opened the meeting by saying, "Ron thinks we've got it all wrong. He thinks it should be organized not around products but instead around what people do." There was a pause, then Jobs continued. "And you know, he's right." He said they would redo the layout, even though it would likely delay the planned January rollout by three or four months. "We've only got one chance to get it right."

Jobs liked to tell the story—and he did so to his team that day—about how everything that he had done correctly had required a moment when he hit the rewind button. In each case he had to rework something that he discovered was not perfect. He talked about doing it on *Toy Story*, when the character of Woody had evolved into being a jerk, and on a couple of occasions with the original Macintosh. "If something isn't right, you can't just ignore it and say you'll fix it later," he said. "That's what other companies do."

When the revised prototype was finally completed in January 2001, Jobs allowed the board to see it for the first time. He explained the theories behind the design by sketching on a whiteboard; then he loaded board members into a van for the two-mile trip. When they saw what Jobs and Johnson had built, they unanimously approved going ahead. It would, the board agreed, take the relationship between retailing and brand image to a new level. It would also ensure that consumers did not see Apple computers as merely a commodity product like Dell or Compaq.

Most outside experts disagreed. "Maybe it's time Steve Jobs stopped thinking quite so differently," *Business Week* wrote in a story headlined "Sorry Steve, Here's Why Apple Stores Won't Work." Apple's former chief financial officer, Joseph Graziano, was quoted as saying, "Apple's problem is it still believes the way to grow is serving caviar in a world that seems pretty content with cheese and crackers." And the retail consultant David Goldstein declared, "I give them two years before they're turning out the lights on a very painful and expensive mistake."

Wood, Stone, Steel, Glass

On May 19, 2001, the first Apple store opened in Tyson's Corner, Virginia, with gleaming white counters, bleached wood floors, and a huge "Think Different" poster of John and Yoko in bed. The skeptics were wrong. Gateway stores had been averaging 250 visitors a week. By 2004 Apple stores were averaging 5,400 per week. That year the stores had $1.2 billion in revenue, setting a record in the retail industry for reaching the billion-dollar milestone. Sales in each store were tabulated every four minutes by Ellison's software, giving instant information on how to integrate manufacturing, supply, and sales channels.

As the stores flourished, Jobs stayed involved in every aspect. Lee Clow recalled, "In one of our marketing meetings just as the stores were opening, Steve made us spend a half hour deciding what hue of gray the restroom signs should be." The architectural firm of Bohlin Cywinski Jackson designed the signature stores, but Jobs made all of the major decisions.

Jobs particularly focused on the staircases, which echoed the one he had built at NeXT. When he visited a store as it was being constructed, he invariably suggested changes to the staircase. His name is listed as the lead inventor on two patent applications on the staircases, one for the see-through look that features all-glass treads and glass supports melded together with titanium, the other for the engineering system that uses a monolithic unit of glass containing multiple glass sheets laminated together for supporting loads.

In 1985, as he was being ousted from his first tour at Apple, he had visited Italy and been impressed by the gray stone of Florence's sidewalks. In 2002, when he came to the conclusion that the light wood floors in the stores were beginning to look somewhat pedestrian—a concern that it's hard to imagine bedeviling someone like Microsoft CEO Steve Ballmer—Jobs wanted to use that stone instead. Some of his colleagues pushed to replicate the color and texture using concrete, which would have been ten times cheaper, but Jobs insisted that it had to be authentic. The gray-blue Pietra Serena sandstone, which has a fine-grained texture, comes from a family-owned quarry, Il Casone, in Firenzuola outside of Florence. "We select only 3% of what comes out of the mountain, because it has to have the right shading and veining and purity," said Johnson. "Steve felt very strongly that we had to get the color right and it had to be a material with high integrity." So designers in Florence picked out just the right quarried stone, oversaw cutting it into the proper tiles, and made sure each tile was marked with a sticker to ensure that it was laid out next to its companion tiles. "Knowing that it's the same stone that Florence uses for its sidewalks assures you that it can stand the test of time," said Johnson.

Another notable feature of the stores was the Genius Bar. Johnson came up with the idea on a two-day retreat with his team. He had asked them all to describe the best service they'd ever enjoyed. Almost everyone mentioned some nice experience at a Four Seasons or Ritz-Carlton hotel. So Johnson sent his first five store managers through the Ritz-Carlton training program and came up with the idea of replicating something between a concierge desk and a bar. "What if we staffed the bar with the smartest Mac people," he said to Jobs. "We could call it the Genius Bar."

Jobs called the idea crazy. He even objected to the name. "You can't call them geniuses," he said. "They're geeks. They don't have the people skills to deliver on something called the genius bar." Johnson thought he had lost, but the next day he ran into Apple's general counsel, who said, "By the way, Steve just told me to trademark the name 'genius bar.' "

Many of Jobs's passions came together for Manhattan's Fifth Avenue store, which opened in 2006: a cube, a signature staircase, glass, and making a maximum statement through minimalism. "It was really Steve's store," said Johnson. Open 24/7, it vindicated the strategy of finding signature high-traffic locations by attracting fifty thousand visitors a week during its first year. (Remember Gateway's draw: 250 visitors a week.) "This store grosses more per square foot than any store in the world," Jobs proudly noted in 2010. "It also grosses more in total—absolute dollars, not just per square foot—than any store in New York. That includes Saks and Bloomingdale's."

Jobs was able to drum up excitement for store openings with the same flair he used for product releases. People began to travel to store openings and spend the night outside so they could be among the first in. "My then 14-year-old son suggested my first overnighter at Palo Alto, and the experience turned into an interesting social event," wrote Gary Allen, who started a website that caters to Apple store fans. "He and I have done several overnighters, including five in other countries, and have met so many great people."

In July 2011, a decade after the first ones opened, there were 326 Apple stores. The biggest was in London's Covent Garden, the tallest in Tokyo's Ginza. The average annual revenue per store was $34 million, and the total net sales in fiscal 2010 were $9.8 billion. But the stores did even more. They directly accounted for only 15% of Apple's revenue, but by creating buzz and brand awareness they indirectly helped boost everything the company did.

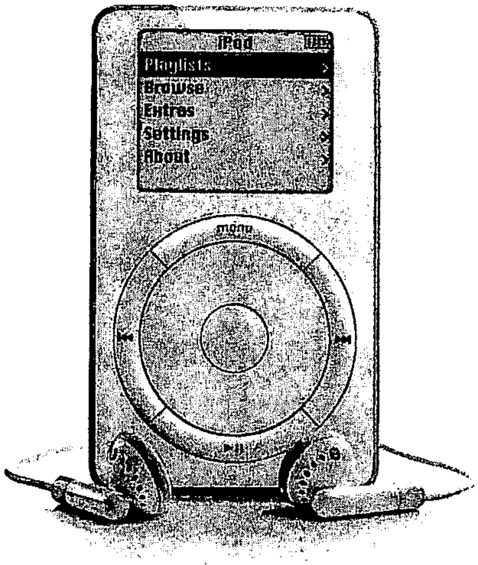
Even as he was fighting the effects of cancer in 2011, Jobs spent time envisioning future store projects, such as the one he wanted to build in New York City's Grand Central Terminal. One afternoon he showed me a picture of the Fifth Avenue store and pointed to the eighteen pieces of glass on each side. "This was state of the art in glass technology at the time," he said. "We had to build our own autoclaves to make the glass." Then he pulled out a drawing in which the eighteen panes were replaced by four huge panes. That is what he wanted to do next, he said. Once again, it was a challenge at the intersection of aesthetics and technology. "If we wanted to do it with our current technology, we would have to make the cube a foot shorter," he said. "And I didn't want to do that. So we have to build some new autoclaves in China."

Ron Johnson was not thrilled by the idea. He thought the eighteen panes actually looked better than four panes would. "The proportions we have today work magically with the colonnade of the GM Building," he said. "It glitters like a jewel box. I think if we get the glass too transparent, it will almost go away to a fault." He debated the point with Jobs, but to no avail. "When technology enables something new, he wants to take advantage of that," said Johnson. "Plus, for Steve, less is always more, simpler is always better. Therefore, if you can build a glass box with fewer elements, it's better, it's simpler, and it's at the forefront of technology. That's where Steve likes to be, in both his products and his stores."

CHAPTER THIRTY

THE DIGITAL HUB

From iTunes to the iPod



The original iPod, 2001

Connecting the Dots

Once a year Jobs took his most valuable employees on a retreat, which he called "The Top 100." They were picked based on a simple guideline: the people you would bring if you could take only a hundred people with you on a lifeboat to your next company. At the end of each retreat, Jobs would stand in front of a whiteboard (he loved whiteboards because they gave him complete control of a situation and they engendered focus) and ask, "What are the ten things we should be doing next?" People would fight to get their suggestions on the list.

Jobs would write them down, and then cross off the ones he decreed dumb. After much jockeying, the group would come up with a list of ten. Then Jobs would slash the bottom seven and announce, "We can only do three."

By 2001 Apple had revived its personal computer offerings. It was now time to think different. A set of new possibilities topped the what-next list on his whiteboard that year.

At the time, a pall had descended on the digital realm. The dot-com bubble had burst, and the NASDAQ had fallen more than 50% from its peak. Only three tech companies had ads during the January 2001 Super Bowl, compared to seventeen the year before. But the sense of deflation went deeper. For the twenty-five years since Jobs and Wozniak had founded Apple, the personal computer had been the centerpiece of the digital revolution. Now experts were predicting that its central role was ending. It had "matured into something boring," wrote the *Wall Street Journal*'s Walt Mossberg. Jeff Weitzen, the CEO of Gateway, proclaimed, "We're clearly migrating away from the PC as the centerpiece."

It was at that moment that Jobs launched a new grand strategy that would transform Apple—and with it the entire technology industry. The personal computer, instead of edging toward the sidelines, would become a "digital hub" that coordinated a variety of devices, from music players to video recorders to cameras. You'd link and sync all these devices with your computer, and it would manage your music, pictures, video, text, and all aspects of what Jobs dubbed your "digital lifestyle." Apple would no longer be just a computer company—indeed it would drop that word from its name—but the Macintosh would be reinvigorated by becoming the hub for an astounding array of new gadgets, including the iPod and iPhone and iPad.

When he was turning thirty, Jobs had used a metaphor about record albums. He was musing about why folks over thirty develop rigid thought patterns and tend to be less innovative. "People get stuck in those patterns, just like grooves in a record, and they never get out of them," he said. At age forty-five, Jobs was now about to get out of his groove.

FireWire

Jobs's vision that your computer could become your digital hub went back to a technology called FireWire, which Apple developed in the early 1990s. It was a high-speed serial port that moved digital files such as video from one device to another. Japanese camcorder makers adopted it, and Jobs decided to include it on the updated versions of the iMac that came out in October 1999. He began to see that FireWire could be part of a system that moved video from cameras onto a computer, where it could be edited and distributed.

To make this work, the iMac needed to have great video editing software. So Jobs went to his old friends at Adobe, the digital graphics company, and asked them to make a new Mac version of Adobe Premiere, which was popular on Windows computers. Adobe's executives stunned Jobs by flatly turning him down. The Macintosh, they said, had too few users to make it worthwhile. Jobs was furious and felt betrayed. "I put Adobe on the map, and they screwed me," he later claimed. Adobe made matters even worse when it also didn't write its other popular programs, such as Photoshop, for the Mac OSX, even though the Macintosh was popular among designers and other creative people who used those applications.

Jobs never forgave Adobe, and a decade later he got into a public war with the company by not permitting Adobe Flash to run on the iPad. He took away a valuable lesson that reinforced his desire for end-to-end control of all key elements of a system: "My primary insight when we were screwed by Adobe in 1999 was that we shouldn't get into any business where we didn't control both the hardware and the software, otherwise we'd get our head handed to us."

So starting in 1999 Apple began to produce application software for the Mac, with a focus on people at the intersection of art and technology. These included Final Cut Pro, for editing digital video; iMovie, which was a simpler consumer version; iDVD, for burning video or music onto a disc; iPhoto, to compete with Adobe Photoshop; GarageBand, for creating and mixing music; iTunes, for managing your songs; and the iTunes Store, for buying songs.

The idea of the digital hub quickly came into focus. "I first understood this with the camcorder," Jobs said. "Using iMovie makes your camcorder ten times more valuable." Instead of having hundreds of hours of raw footage you would never really sit through, you could edit it on your computer, make elegant dissolves, add music, and roll credits, listing yourself as executive producer. It allowed people to be creative, to express themselves, to make something emotional. "That's when it hit me that the personal computer was going to morph into something else."

Jobs had another insight: If the computer served as the hub, it would allow the portable devices to become simpler. A lot of the functions that the devices tried to do, such as editing the video or pictures, they did poorly because they had small screens and could not easily accommodate menus filled with lots of functions. Computers could handle that more easily.

And one more thing . . . What Jobs also saw was that this worked best when everything—the device, computer, software, applications, FireWire—was all tightly integrated. "I became even more of a believer in providing end-to-end solutions," he recalled.

The beauty of this realization was that there was only one company that was well-positioned to provide such an integrated approach. Microsoft wrote software, Dell and Compaq made hardware, Sony produced a lot of digital devices, Adobe developed a lot of applications. But only Apple did all of these things. "We're the only company that owns the whole widget—the hardware, the software and the operating system," he explained to *Time.* "We can take full responsibility for the user experience. We can do things that the other guys can't do."

Apple's first integrated foray into the digital hub strategy was video. With FireWire, you could get your video onto your Mac, and with iMovie you could edit it into a masterpiece. Then what? You'd want to burn some DVDs so you and your friends could watch it on a TV. "So we spent a lot of time working with the drive manufacturers to get a consumer drive that could burn a DVD," he said. "We were the first to ever ship that." As usual Jobs focused on making the product as simple as possible for the user, and this was the key to its success. Mike Evangelist, who worked at Apple on software design, recalled demonstrating to Jobs an early version of the interface. After looking at a bunch of screenshots, Jobs jumped up, grabbed a marker, and drew a simple rectangle on a whiteboard. "Here's the new application," he said. "It's got one window. You drag your video into the window. Then you click the button that says 'Burn.' That's it. That's what we're going to make." Evangelist was dumbfounded, but it led to the simplicity of what became iDVD. Jobs even helped design the "Burn" button icon.

Jobs knew digital photography was also about to explode, so Apple developed ways to make the computer the hub of your photos. But for the first year at least, he took his eye off one really big opportunity. HP and a few others were producing a drive that burned music CDs, but Jobs decreed that Apple should focus on video rather than music. In addition, his angry insistence that the iMac get rid of its tray disk drive and use instead a more elegant slot drive meant that it could not include the first CD burners, which were initially made for the tray format. "We kind of missed the boat on that," he recalled. "So we needed to catch up real fast."

The mark of an innovative company is not only that it comes up with new ideas first, but also that it knows how to leapfrog when it finds itself behind.

iTunes

It didn't take Jobs long to realize that music was going to be huge. By 2000 people were ripping music onto their computers from CDs, or downloading it from file-sharing services such as Napster, and burning playlists onto their own blank disks. That year the number of blank CDs sold in the United States was 320 million. There were only 281 million people in the country. That meant some people were *really* into burning CDs, and Apple wasn't catering to them. "I felt like a dope," he told *Fortune*. "I thought we had missed it. We had to work hard to catch up."

Jobs added a CD burner to the iMac, but that wasn't enough. His goal was to make it simple to transfer music from a CD, manage it on your computer, and then burn playlists. Other companies were already making music-management applications, but they were clunky and complex. One of Jobs's talents was spotting markets that were filled with second-rate products. He looked at the music apps that were available—including Real Jukebox, Windows Media Player, and one that HP was including with its CD burner—and came to a conclusion: "They were so complicated that only a genius could figure out half of their features."

That is when Bill Kincaid came in. A former Apple software engineer, he was driving to a track in Willows, California, to race his Formula Ford sports car while (a bit incongruously) listening to National Public Radio. He heard a report about a portable music player called the Rio that played a digital song format called MP3. He perked up when the reporter said something like, "Don't get excited, Mac users, because it won't work with Macs." Kincaid said to himself, "Ha! I can fix that!"

To help him write a Rio manager for the Mac, he called his friends Jeff Robbin and Dave Heller, also former Apple software engineers. Their product, known as SoundJam, offered Mac users an interface for the Rio and software for managing the songs on their computer. In July 2000, when Jobs was pushing his team to come up with music-management software, Apple swooped in and bought SoundJam, bringing its founders back into the Apple fold. (All three stayed with the company, and Robbin continued to run the music software development team for the next decade. Jobs considered Robbin so valuable he once allowed a *Time* reporter to meet him only after extracting the promise that the reporter would not print his last name.)

Jobs personally worked with them to transform SoundJam into an Apple product. It was laden with all sorts of features, and consequently a lot of complex screens. Jobs pushed them to make it simpler and more fun. Instead of an interface that made you specify whether you were searching for an artist, song, or album, Jobs insisted on a simple box where you could type in anything you wanted. From iMovie the team adopted the sleek brushed-metal look and also a name. They dubbed it iTunes.

Jobs unveiled iTunes at the January 2001 Macworld as part of the digital hub strategy. It would be free to all Mac users, he announced.

"Join the music revolution with iTunes, and make your music devices ten times more valuable," he concluded to great applause. As his advertising slogan would later put it: *Rip. Mix. Burn.*

That afternoon Jobs happened to be meeting with John Markoff of the *New York Times.* The interview was going badly, but at the end Jobs sat down at his Mac and showed off iTunes. "It reminds me of my youth," he said as the psychedelic patterns danced on the screen. That led him to reminisce about dropping acid. Taking LSD was one of the two or three most important things he'd done in his life, Jobs told Markoff. People who had never taken acid would never fully understand him.

The iPod

The next step for the digital hub strategy was to make a portable music player. Jobs realized that Apple had the opportunity to design such a device in tandem with the iTunes software, allowing it to be simpler. Complex tasks could be handled on the computer, easy ones on the device. Thus was born the iPod, the device that would begin the transformation of Apple from being a computer maker into being the world's most valuable company.

Jobs had a special passion for the project because he loved music. The music players that were already on the market, he told his colleagues, "truly sucked." Phil Schiller, Jon Rubinstein, and the rest of the team agreed. As they were building iTunes, they spent time with the Rio and other players while merrily trashing them. "We would sit around and say, 'These things really stink,'" Schiller recalled. "They held about sixteen songs, and you couldn't figure out how to use them."

Jobs began pushing for a portable music player in the fall of 2000, but Rubinstein responded that the necessary components were not available yet. He asked Jobs to wait. After a few months Rubinstein was able to score a suitable small LCD screen and rechargeable lithium-polymer battery. The tougher challenge was finding a disk drive that was small enough but had ample memory to make a great music player. Then, in February 2001, he took one of his regular trips to Japan to visit Apple's suppliers.

At the end of a routine meeting with Toshiba, the engineers mentioned a new product they had in the lab that would be ready by that June. It was a tiny, 1.8-inch drive (the size of a silver dollar) that would hold five gigabytes of storage (about a thousand songs), and they were not sure what to do with it. When the Toshiba engineers showed it to Rubinstein, he knew immediately what it could be used for. A thousand songs in his pocket! Perfect. But he kept a poker face. Jobs was also in Japan, giving the keynote speech at the Tokyo Macworld conference. They met that night at the Hotel Okura, where Jobs was staying. "I know how to do it now," Rubinstein told him. "All I need is a $10 million check." Jobs immediately authorized it. So Rubinstein started negotiating with Toshiba to have exclusive rights to every one of the disks it could make, and he began to look around for someone who could lead the development team.

Tony Fadell was a brash entrepreneurial programmer with a cyberpunk look and an engaging smile who had started three companies while still at the University of Michigan. He had gone to work at the handheld device maker General Magic (where he met Apple refugees Andy Hertzfeld and Bill Atkinson), and then spent some awkward time at Philips Electronics, where he bucked the staid culture with his short bleached hair and rebellious style. He had come up with some ideas for creating a better digital music player, which he had shopped around unsuccessfully to RealNetworks, Sony, and Philips. One day he was in Colorado, skiing with an uncle, and his cell phone rang while he was riding on the chairlift. It was Rubinstein, who told him that Apple was looking for someone who could work on a "small electronic device." Fadell, not lacking in confidence, boasted that he was a wizard at making such devices. Rubinstein invited him to Cupertino.

Fadell assumed that he was being hired to work on a personal digital assistant, some successor to the Newton. But when he met with Rubinstein, the topic quickly turned to iTunes, which had been out for three months. "We've been trying to hook up the existing MP3 players to iTunes and they've been horrible, absolutely horrible," Rubinstein told him. "We think we should make our own version."

Fadell was thrilled. "I was passionate about music. I was trying to do some of that at RealNetworks, and I was pitching an MP3 player to Palm." He agreed to come aboard, at least as a consultant. After a few weeks Rubinstein insisted that if he was to lead the team, he had to become a full-time Apple employee. But Fadell resisted; he liked his freedom. Rubinstein was furious at what he considered Fadell's whining. "This is one of those life decisions," he told Fadell. "You'll never regret it."

He decided to force Fadell's hand. He gathered a roomful of the twenty or so people who had been assigned to the project. When Fadell walked in, Rubinstein told him, "Tony, we're not doing this project unless you sign on full-time. Are you in or out? You have to decide right now."

Fadell looked Rubinstein in the eye, then turned to the audience and said, "Does this always happen at Apple, that people are put under duress to sign an offer?" He paused for a moment, said yes, and grudgingly shook Rubinstein's hand. "It left some very unsettling feeling between Jon and me for many years," Fadell recalled. Rubinstein agreed: "I don't think he ever forgave me for that."

Fadell and Rubinstein were fated to clash because they both thought that they had fathered the iPod. As Rubinstein saw it, he had been given the mission by Jobs months earlier, found the Toshiba disk drive, and figured out the screen, battery, and other key elements. He had then brought in Fadell to put it together. He and others who resented Fadell's visibility began to refer to him as "Tony Baloney." But from Fadell's perspective, before he came to Apple he had already come up with plans for a great MP3 player, and he had been shopping it around to other companies before he had agreed to come to Apple. The issue of who deserved the most credit for the iPod, or should get the title Podfather, would be fought over the years in interviews, articles, web pages, and even *Wikipedia* entries.

But for the next few months they were too busy to bicker. Jobs wanted the iPod out by Christmas, and this meant having it ready to unveil in October. They looked around for other companies that were designing MP3 players that could serve as the foundation for Apple's work and settled on a small company named PortalPlayer. Fadell told the team there, "This is the project that's going to remold Apple, and ten years from now, it's going to be a music business, not a computer business." He convinced them to sign an exclusive deal, and his group began to modify PortalPlayer's deficiencies, such as its complex interfaces, short battery life, and inability to make a playlist longer than ten songs.

That's It!

There are certain meetings that are memorable both because they mark a historic moment and because they illuminate the way a leader operates. Such was the case with the gathering in Apple's fourth-floor conference room in April 2001, where Jobs decided on the fundamentals of the iPod. There to hear Fadell present his proposals to Jobs were Rubinstein, Schiller, Ive, Jeff Robbin, and marketing director Stan Ng. Fadell didn't know Jobs, and he was understandably intimidated. "When he walked into the conference room, I sat up and thought, 'Whoa, there's Steve!' I was really on guard, because I'd heard how brutal he could be."

The meeting started with a presentation of the potential market and what other companies were doing. Jobs, as usual, had no patience. "He won't pay attention to a slide deck for more than a minute," Fadell said. When a slide showed other possible players in the market, he waved it away. "Don't worry about Sony," he said. "We know what we're doing, and they don't." After that, they quit showing slides, and instead Jobs peppered the group with questions. Fadell took away a lesson: "Steve prefers to be in the moment, talking things through. He once told me, 'If you need slides, it shows you don't know what you're talking about.' "

Instead Jobs liked to be shown physical objects that he could feel, inspect, and fondle. So Fadell brought three different models to the conference room; Rubinstein had coached him on how to reveal them sequentially so that his preferred choice would be the pièce de résistance. They hid the mockup of that option under a wooden bowl at the center of the table.

Fadell began his show-and-tell by taking the various parts they were using out of a box and spreading them on the table. There were the 1.8-inch drive, LCD screen, boards, and batteries, all labeled with their cost and weight. As he displayed them, they discussed how the prices or sizes might come down over the next year or so. Some of the pieces could be put together, like Lego blocks, to show the options.

Then Fadell began unveiling his models, which were made of Styrofoam with fishing leads inserted to give them the proper weight. The first had a slot for a removable memory card for music. Jobs dismissed it as complicated. The second had dynamic RAM memory, which was cheap but would lose all of the songs if the battery ran out. Jobs was not pleased. Next Fadell put a few of the pieces together to show what a device with the 1.8-inch hard drive would be like. Jobs seemed intrigued. The show climaxed with Fadell lifting the bowl and revealing a fully assembled model of that alternative. "I was hoping to be able to play more with the Lego parts, but Steve settled right on the hard-drive option just the way we had modeled it," Fadell recalled. He was rather stunned by the process. "I was used to being at Philips, where decisions like this would take meeting after meeting, with a lot of PowerPoint presentations and going back for more study."

Next it was Phil Schiller's turn. "Can I bring out my idea now?" he asked. He left the room and returned with a handful of iPod models, all of which had the same device on the front: the soon-to-be-famous trackwheel. "I had been thinking of how you go through a playlist," he recalled. "You can't press a button hundreds of times. Wouldn't it be great if you could have a wheel?" By turning the wheel with your thumb, you could scroll through songs. The longer you kept turning, the faster the scrolling got, so you could zip through hundreds easily. Jobs shouted, "That's it!" He got Fadell and the engineers working on it.

Once the project was launched, Jobs immersed himself in it daily. His main demand was "Simplify!" He would go over each screen of the user interface and apply a rigid test: If he wanted a song or a function, he should be able to get there in three clicks. And the click should be intuitive. If he couldn't figure out how to navigate to something, or if it took more than three clicks, he would be brutal. "There would be times when we'd rack our brains on a user interface problem, and think we'd considered every option, and he would go, 'Did you think of this?' " said Fadell. "And then we'd all go, 'Holy shit.' He'd redefine the problem or approach, and our little problem would go away."

Every night Jobs would be on the phone with ideas. Fadell and the others would call each other up, discuss Jobs's latest suggestion, and conspire on how to nudge him to where they wanted him to go, which worked about half the time. "We would have this swirling thing of Steve's latest idea, and we would all try to stay ahead of it," said Fadell. "Every day there was something like that, whether it was a switch here, or a button color, or a pricing strategy issue. With his style, you needed to work with your peers, watch each other's back."

One key insight Jobs had was that as many functions as possible should be performed using iTunes on your computer rather than on the iPod. As he later recalled:

> In order to make the iPod really easy to use—and this took a lot of arguing on my part—we needed to limit what the device itself would do. Instead we put that functionality in iTunes on the computer. For example, we made it so you couldn't make playlists using the device. You made playlists on iTunes, and then you synced with the device. That was controversial. But what made the Rio and other devices so brain-dead was that they were complicated. They had to do things like make playlists, because they weren't integrated with the jukebox software on your computer. So by owning the iTunes software and the iPod device, that allowed us to make the computer and the device work together, and it allowed us to put the complexity in the right place.

The most Zen of all simplicities was Jobs's decree, which astonished his colleagues, that the iPod would not have an on-off switch. It became true of most Apple devices. There was no need for one. Apple's devices would go dormant if they were not being used, and they would wake up when you touched any key. But there was no need for a switch that would go "Click—you're off. Good-bye."

Suddenly everything had fallen into place: a drive that would hold a thousand songs; an interface and scroll wheel that would let you navigate a thousand songs; a FireWire connection that could sync a thousand songs in under ten minutes; and a battery that would last through a thousand songs. "We suddenly were looking at one another and saying, 'This is going to be so cool,'" Jobs recalled. "We knew how cool it was, because we knew how badly we each wanted one personally. And the concept became so beautifully simple: a thousand songs in your pocket." One of the copywriters suggested they call it a "Pod." Jobs was the one who, borrowing from the iMac and iTunes names, modified that to iPod.

The Whiteness of the Whale

Jony Ive had been playing with the foam model of the iPod and trying to conceive what the finished product should look like when an idea occurred to him on a morning drive from his San Francisco home to Cupertino. Its face should be pure white, he told his colleague in the car, and it should connect seamlessly to a polished stainless steel back. "Most small consumer products have this disposable feel to them," said Ive. "There is no cultural gravity to them. The thing I'm proudest of about the iPod is that there is something about it that makes it feel significant, not disposable."

The white would be not just white, but *pure* white. "Not only the device, but the headphones and the wires and even the power block," he recalled. "*Pure* white." Others kept arguing that the headphones, of course, should be black, like all headphones. "But Steve got it immediately, and embraced white," said Ive. "There would be a purity to it." The sinuous flow of the white earbud wires helped make the iPod an icon. As Ive described it:

> There was something very significant and nondisposable about it, yet there was also something very quiet and very restrained. It wasn't wagging its tail in your face. It was restrained, but it was also crazy, with those flowing headphones. That's why I like white. White isn't just a

> neutral color. It is so pure and quiet. Bold and conspicuous and yet so inconspicuous as well.

Lee Clow's advertising team at TBWA\Chiat\Day wanted to celebrate the iconic nature of the iPod and its whiteness rather than create more traditional product-introduction ads that showed off the device's features. James Vincent, a lanky young Brit who had played in a band and worked as a DJ, had recently joined the agency, and he was a natural to help focus Apple's advertising on hip millennial-generation music lovers rather than rebel baby boomers. With the help of the art director Susan Alinsangan, they created a series of billboards and posters for the iPod, and they spread the options on Jobs's conference room table for his inspection.

At the far right end they placed the most traditional options, which featured straightforward photos of the iPod on a white background. At the far left end they placed the most graphic and iconic treatments, which showed just a silhouette of someone dancing while listening to an iPod, its white earphone wires waving with the music. "It understood your emotional and intensely personal relationship with the music," Vincent said. He suggested to Duncan Milner, the creative director, that they all stand firmly at the far left end, to see if they could get Jobs to gravitate there. When he walked in, he went immediately to the right, looking at the stark product pictures. "This looks great," he said. "Let's talk about these." Vincent, Milner, and Clow did not budge from the other end. Finally, Jobs looked up, glanced at the iconic treatments, and said, "Oh, I guess you like this stuff." He shook his head. "It doesn't show the product. It doesn't say what it is." Vincent proposed that they use the iconic images but add the tagline, "1,000 songs in your pocket." That would say it all. Jobs glanced back toward the right end of the table, then finally agreed. Not surprisingly he was soon claiming that it was his idea to push for the more iconic ads. "There were some skeptics around who asked, 'How's this going to actually sell an iPod?' " Jobs recalled. "That's when it came in handy to be the CEO, so I could push the idea through."

Jobs realized that there was yet another advantage to the fact that Apple had an integrated system of computer, software, and device. It meant that sales of the iPod would drive sales of the iMac. That, in turn, meant that he could take money that Apple was spending on iMac advertising and shift it to spending on iPod ads—getting a double bang for the buck. A triple bang, actually, because the ads would lend luster and youthfulness to the whole Apple brand. He recalled:

> I had this crazy idea that we could sell just as many Macs by advertising the iPod. In addition, the iPod would position Apple as evoking innovation and youth. So I moved $75 million of advertising money to the iPod, even though the category didn't justify one hundredth of that. That meant that we completely dominated the market for music players. We outspent everybody by a factor of about a hundred.

The television ads showed the iconic silhouettes dancing to songs picked by Jobs, Clow, and Vincent. "Finding the music became our main fun at our weekly marketing meetings," said Clow. "We'd play some edgy cut, Steve would say, 'I hate that,' and James would have to talk him into it." The ads helped popularize many new bands, most notably the Black Eyed Peas; the ad with "Hey Mama" is the classic of the silhouettes genre. When a new ad was about to go into production, Jobs would often have second thoughts, call up Vincent, and insist that he cancel it. "It sounds a bit poppy" or "It sounds a bit trivial," he would say. "Let's call it off." James would get flustered and try to talk him around. "Hold on, it's going to be great," he would argue. Invariably Jobs would relent, the ad would be made, and he would love it.

Jobs unveiled the iPod on October 23, 2001, at one of his signature product launch events. "Hint: It's not a Mac," the invitation teased. When it came time to reveal the product, after he described its technical capabilities, Jobs did not do his usual trick of walking over to a table and pulling off a velvet cloth. Instead he said, "I happen to have one right here in my pocket." He reached into his jeans and pulled out the gleaming white device. "This amazing little device holds a thousand songs, and it goes right in my pocket." He slipped it back in and ambled offstage to applause.

Initially there was some skepticism among tech geeks, especially about the $399 price. In the blogosphere, the joke was that iPod stood for "idiots price our devices." However, consumers soon made it a hit. More than that, the iPod became the essence of everything Apple was destined to be: poetry connected to engineering, arts and creativity intersecting with technology, design that's bold and simple. It had an ease of use that came from being an integrated end-to-end system, from computer to FireWire to device to software to content management. When you took an iPod out of the box, it was so beautiful that it seemed to glow, and it made all other music players look as if they had been designed and manufactured in Uzbekistan.

Not since the original Mac had a clarity of product vision so propelled a company into the future. "If anybody was ever wondering why Apple is on the earth, I would hold up this as a good example," Jobs told *Newsweek*'s Steve Levy at the time. Wozniak, who had long been skeptical of integrated systems, began to revise his philosophy. "Wow, it makes sense that Apple was the one to come up with it," Wozniak enthused after the iPod came out. "After all, Apple's whole history is making both the hardware and the software, with the result that the two work better together."

The day that Levy got his press preview of the iPod, he happened to be meeting Bill Gates at a dinner, and he showed it to him. "Have you seen this yet?" Levy asked. Levy noted, "Gates went into a zone that recalls those science fiction films where a space alien, confronted with a novel object, creates some sort of force tunnel between him and the object, allowing him to suck directly into his brain all possible information about it." Gates played with the scroll wheel and pushed every button combination, while his eyes stared fixedly at the screen. "It looks like a great product," he finally said. Then he paused and looked puzzled. "It's only for Macintosh?" he asked.

CHAPTER THIRTY-ONE

THE iTUNES STORE

I'm the Pied Piper

Warner Music

At the beginning of 2002 Apple faced a challenge. The seamless connection between your iPod, iTunes software, and computer made it easy to manage the music you already owned. But to get new music, you had to venture out of this cozy environment and go buy a CD or download the songs online. The latter endeavor usually meant foraying into the murky domains of file-sharing and piracy services. So Jobs wanted to offer iPod users a way to download songs that was simple, safe, and legal.

The music industry also faced a challenge. It was being plagued by a bestiary of piracy services—Napster, Grokster, Gnutella, Kazaa—that enabled people to get songs for free. Partly as a result, legal sales of CDs were down 9% in 2002.

The executives at the music companies were desperately scrambling, with the elegance of second-graders playing soccer, to agree on a common standard for copy-protecting digital music. Paul Vidich of Warner Music and his corporate colleague Bill Raduchel of AOL Time Warner were working with Sony in that effort, and they hoped to get Apple to be part of their consortium. So a group of them flew to Cupertino in January 2002 to see Jobs.

It was not an easy meeting. Vidich had a cold and was losing his voice, so his deputy, Kevin Gage, began the presentation. Jobs, sitting at the head of the conference table, fidgeted and looked annoyed. After four slides, he waved his hand and broke in. "You have your heads up your asses," he pointed out. Everyone turned to Vidich, who struggled to get his voice working. "You're right," he said after a long pause. "We don't know what to do. You need to help us figure it out." Jobs later recalled being slightly taken aback, and he agreed that Apple would work with the Warner-Sony effort.

If the music companies had been able to agree on a standardized encoding method for protecting music files, then multiple online stores could have proliferated. That would have made it hard for Jobs to create an iTunes Store that allowed Apple to control how online sales were handled. Sony, however, handed Jobs that opportunity when it decided, after the January 2002 Cupertino meeting, to pull out of the talks because it favored its own proprietary format, from which it would get royalties.

"You know Steve, he has his own agenda," Sony's CEO Nobuyuki Idei explained to *Red Herring* editor Tony Perkins. "Although he is a genius, he doesn't share everything with you. This is a difficult person to work with if you are a big company. . . . It is a nightmare." Howard Stringer, then head of Sony North America, added about Jobs: "Trying to get together would frankly be a waste of time."

Instead Sony joined with Universal to create a subscription service called Pressplay. Meanwhile, AOL Time Warner, Bertelsmann, and EMI teamed up with RealNetworks to create MusicNet. Neither would license its songs to the rival service, so each offered only about half the music available. Both were subscription services that allowed customers to stream songs but not keep them, so you lost access to them if your subscription lapsed. They had complicated restrictions and clunky interfaces. Indeed they would earn the dubious distinction of becoming number nine on *PC World*'s list of "the 25 worst tech products of all time." The magazine declared, "The services' stunningly brain-dead features showed that the record companies still didn't get it."

At this point Jobs could have decided simply to indulge piracy. Free music meant more valuable iPods. Yet because he *really* liked music, and the artists who made it, he was opposed to what he saw as the theft of creative products. As he later told me:

> From the earliest days at Apple, I realized that we thrived when we created intellectual property. If people copied or stole our software, we'd be out of business. If it weren't protected, there'd be no incentive for us to make new software or product designs. If protection of intellectual property begins to disappear, creative companies will disappear or never get started. But there's a simpler reason: It's wrong to steal. It hurts other people. And it hurts your own character.

He knew, however, that the best way to stop piracy—in fact the only way—was to offer an alternative that was more attractive than the brain-dead services that music companies were concocting. "We believe that 80% of the people stealing stuff don't want to be, there's just no legal alternative," he told Andy Langer of *Esquire*. "So we said, 'Let's create a legal alternative to this.' Everybody wins. Music companies win. The artists win. Apple wins. And the user wins, because he gets a better service and doesn't have to be a thief."

So Jobs set out to create an "iTunes Store" and to persuade the five top record companies to allow digital versions of their songs to be sold there. "I've never spent so much of my time trying to convince people to do the right thing for themselves," he recalled. Because the companies were worried about the pricing model and unbundling of albums, Jobs pitched that his new service would be only on the Macintosh, a mere 5% of the market. They could try the idea with little risk. "We used our small market share to our advantage by arguing that if the store turned out to be destructive it wouldn't destroy the entire universe," he recalled.

Jobs's proposal was to sell digital songs for 99 cents—a simple and impulsive purchase. The record companies would get 70 cents of that.

Jobs insisted that this would be more appealing than the monthly subscription model preferred by the music companies. He believed that people had an emotional connection to the songs they loved. They wanted to *own* "Sympathy for the Devil" and "Shelter from the Storm," not just rent them. As he told Jeff Goodell of *Rolling Stone* at the time, "I think you could make available the Second Coming in a subscription model and it might not be successful."

Jobs also insisted that the iTunes Store would sell individual songs, not just entire albums. That ended up being the biggest cause of conflict with the record companies, which made money by putting out albums that had two or three great songs and a dozen or so fillers; to get the song they wanted, consumers had to buy the whole album. Some musicians objected on artistic grounds to Jobs's plan to disaggregate albums. "There's a flow to a good album," said Trent Reznor of Nine Inch Nails. "The songs support each other. That's the way I like to make music." But the objections were moot. "Piracy and online downloads had already deconstructed the album," recalled Jobs. "You couldn't compete with piracy unless you sold the songs individually."

At the heart of the problem was a chasm between the people who loved technology and those who loved artistry. Jobs loved both, as he had demonstrated at Pixar and Apple, and he was thus positioned to bridge the gap. He later explained:

> When I went to Pixar, I became aware of a great divide. Tech companies don't understand creativity. They don't appreciate *intuitive* thinking, like the ability of an A&R guy at a music label to listen to a hundred artists and have a feel for which five might be successful. And they think that creative people just sit around on couches all day and are undisciplined, because they've not seen how driven and disciplined the creative folks at places like Pixar are. On the other hand, music companies are completely clueless about technology. They think they can just go out and hire a few tech folks. But that would be like Apple trying to hire people to produce music. We'd get second-rate A&R people, just like the music companies ended up with second-rate tech people. I'm one of the few people who understands how producing technology requires intuition and creativity, and how producing something artistic takes real discipline.

Jobs had a long relationship with Barry Schuler, the CEO of the AOL unit of Time Warner, and began to pick his brain about how to get the music labels into the proposed iTunes Store. "Piracy is flipping everyone's circuit breakers," Schuler told him. "You should use the argument that because you have an integrated end-to-end service, from iPods to the store, you can best protect how the music is used."

One day in March 2002, Schuler got a call from Jobs and decided to conference-in Vidich. Jobs asked Vidich if he would come to Cupertino and bring the head of Warner Music, Roger Ames. This time Jobs was charming. Ames was a sardonic, fun, and clever Brit, a type (such as James Vincent and Jony Ive) that Jobs tended to like. So the Good Steve was on display. At one point early in the meeting, Jobs even played the unusual role of diplomat. Ames and Eddy Cue, who ran iTunes for Apple, got into an argument over why radio in England was not as vibrant as in the United States, and Jobs stepped in, saying, "We know about tech, but we don't know as much about music, so let's not argue."

Ames had just lost a boardroom battle to have his corporation's AOL division improve its own fledgling music download service. "When I did a digital download using AOL, I could never find the song on my shitty computer," he recalled. So when Jobs demonstrated a prototype of the iTunes Store, Ames was impressed. "Yes, yes, that's exactly what we've been waiting for," he said. He agreed that Warner Music would sign up, and he offered to help enlist other music companies.

Jobs flew east to show the service to other Time Warner execs. "He sat in front of a Mac like a kid with a toy," Vidich recalled. "Unlike any other CEO, he was totally engaged with the product." Ames and Jobs began to hammer out the details of the iTunes Store, including the number of times a track could be put on different devices and how the copy-protection system would work. They soon were in agreement and set out to corral other music labels.

Herding Cats

The key player to enlist was Doug Morris, head of the Universal Music Group. His domain included must-have artists such as U2, Eminem, and Mariah Carey, as well as powerful labels such as Motown and Interscope-Geffen-A&M. Morris was eager to talk. More than any other mogul, he was upset about piracy and fed up with the caliber of the technology people at the music companies. "It was like the Wild West," Morris recalled. "No one was selling digital music, and it was awash with piracy. Everything we tried at the record companies was a failure. The difference in skill sets between the music folks and technologists is just huge."

As Ames walked with Jobs to Morris's office on Broadway he briefed Jobs on what to say. It worked. What impressed Morris was that Jobs tied everything together in a way that made things easy for the consumer and also safe for the record companies. "Steve did something brilliant," said Morris. "He proposed this complete system: the iTunes Store, the music-management software, the iPod itself. It was so smooth. He had the whole package."

Morris was convinced that Jobs had the technical vision that was lacking at the music companies. "Of course we have to rely on Steve Jobs to do this," he told his own tech vice president, "because we don't have anyone at Universal who knows anything about technology." That did not make Universal's technologists eager to work with Jobs, and Morris had to keep ordering them to surrender their objections and make a deal quickly. They were able to add a few more restrictions to FairPlay, the Apple system of digital rights management, so that a purchased song could not be spread to too many devices. But in general, they went along with the concept of the iTunes Store that Jobs had worked out with Ames and his Warner colleagues.

Morris was so smitten with Jobs that he called Jimmy Iovine, the fast-talking and brash chief of Interscope-Geffen-A&M. Iovine and Morris were best friends who had spoken every day for the past thirty years. "When I met Steve, I thought he was our savior, so I immediately brought Jimmy in to get his impression," Morris recalled.

Jobs could be extraordinarily charming when he wanted to be, and he turned it on when Iovine flew out to Cupertino for a demo. "See how simple it is?" he asked Iovine. "Your tech folks are never going to do this. There's no one at the music companies who can make it simple enough."

Iovine called Morris right away. "This guy is unique!" he said. "You're right. He's got a turnkey solution." They complained about how they had spent two years working with Sony, and it hadn't gone anywhere. "Sony's never going to figure things out," he told Morris. They agreed to quit dealing with Sony and join with Apple instead. "How Sony missed this is completely mind-boggling to me, a historic fuckup," Iovine said. "Steve would fire people if the divisions didn't work together, but Sony's divisions were at war with one another."

Indeed Sony provided a clear counterexample to Apple. It had a consumer electronics division that made sleek products and a music division with beloved artists (including Bob Dylan). But because each division tried to protect its own interests, the company as a whole never got its act together to produce an end-to-end service.

Andy Lack, the new head of Sony music, had the unenviable task of negotiating with Jobs about whether Sony would sell its music in the iTunes Store. The irrepressible and savvy Lack had just come from a distinguished career in television journalism—a producer at CBS News and president of NBC—and he knew how to size people up and keep his sense of humor. He realized that, for Sony, selling its songs in the iTunes Store was both insane and necessary—which seemed to be the case with a lot of decisions in the music business. Apple would make out like a bandit, not just from its cut on song sales, but from driving the sale of iPods. Lack believed that since the music companies would be responsible for the success of the iPod, they should get a royalty from each device sold.

Jobs would agree with Lack in many of their conversations and claim that he wanted to be a true partner with the music companies. "Steve, you've got me if you just give me *something* for every sale of your device," Lack told him in his booming voice. "It's a beautiful device. But our music is helping to sell it. That's what true partnership means to me."

"I'm with you," Jobs replied on more than one occasion. But then he would go to Doug Morris and Roger Ames to lament, in a conspiratorial fashion, that Lack just didn't get it, that he was clueless about the music business, that he wasn't as smart as Morris and Ames. "In classic Steve fashion, he would agree to something, but it would never happen," said Lack. "He would set you up and then pull it off the table. He's pathological, which can be useful in negotiations. And he's a genius."

Lack knew that he could not win his case unless he got support from others in the industry. But Jobs used flattery and the lure of Apple's marketing clout to keep the other record labels in line. "If the industry had stood together, we could have gotten a license fee, giving us the dual revenue stream we desperately needed," Lack said. "We were the ones making the iPod sell, so it would have been equitable." That, of course, was one of the beauties of Jobs's end-to-end strategy: Sales of songs on iTunes would drive iPod sales, which would drive Macintosh sales. What made it all the more infuriating to Lack was that Sony could have done the same, but it never could get its hardware and software and content divisions to row in unison.

Jobs tried hard to seduce Lack. During one visit to New York, he invited Lack to his penthouse at the Four Seasons hotel. Jobs had already ordered a breakfast spread—oatmeal and berries for them both—and was "beyond solicitous," Lack recalled. "But Jack Welch taught me not to fall in love. Morris and Ames could be seduced. They would say, 'You don't get it, you're supposed to fall in love,' and they did. So I ended up isolated in the industry."

Even after Sony agreed to sell its music in the iTunes Store, the relationship remained contentious. Each new round of renewals or changes would bring a showdown. "With Andy, it was mostly about his big ego," Jobs claimed. "He never really understood the music business, and he could never really deliver. I thought he was sometimes a dick." When I told him what Jobs said, Lack responded, "I fought for Sony and the music industry, so I can see why he thought I was a dick."

Corralling the record labels to go along with the iTunes plan was not enough, however. Many of their artists had carve-outs in their contracts that allowed them personally to control the digital distribution of their music or prevent their songs from being unbundled from their albums and sold singly. So Jobs set about cajoling various top musicians, which he found fun but also a lot harder than he expected.

Before the launch of iTunes, Jobs met with almost two dozen major artists, including Bono, Mick Jagger, and Sheryl Crow. "He would call me at home, relentless, at ten at night, to say he still needed to get to Led Zeppelin or Madonna," Ames recalled. "He was determined, and nobody else could have convinced some of these artists."

Perhaps the oddest meeting was when Dr. Dre came to visit Jobs at Apple headquarters. Jobs loved the Beatles and Dylan, but he admitted that the appeal of rap eluded him. Now Jobs needed Eminem and other rappers to agree to be sold in the iTunes Store, so he huddled with Dr. Dre, who was Eminem's mentor. After Jobs showed him the seamless way the iTunes Store would work with the iPod, Dr. Dre proclaimed, "Man, somebody finally got it right."

On the other end of the musical taste spectrum was the trumpeter Wynton Marsalis. He was on a West Coast fund-raising tour for Jazz at Lincoln Center and was meeting with Jobs's wife, Laurene. Jobs insisted that he come over to the house in Palo Alto, and he proceeded to show off iTunes. "What do you want to search for?" he asked Marsalis. Beethoven, the trumpeter replied. "Watch what it can do!" Jobs kept insisting when Marsalis's attention would wander. "See how the interface works." Marsalis later recalled, "I don't care much about computers, and kept telling him so, but he goes on for two hours. He was a man possessed. After a while, I started looking at him and not the computer, because I was so fascinated with his passion."

Jobs unveiled the iTunes Store on April 28, 2003, at San Francisco's Moscone Center. With hair now closely cropped and receding, and a studied unshaven look, Jobs paced the stage and described how Napster "demonstrated that the Internet was made for music delivery." Its offspring, such as Kazaa, he said, offered songs for free. How do you compete with that? To answer that question, he began by describing the downsides of using these free services. The downloads were unreliable and the quality was often bad. "A lot of these songs are encoded by seven-year-olds, and they don't do a great job." In addition, there were no previews or album art. Then he added, "Worst of all it's stealing. It's best not to mess with karma."

Why had these piracy sites proliferated, then? Because, Jobs said, there was no alternative. The subscription services, such as Pressplay and MusicNet, "treat you like a criminal," he said, showing a slide of an inmate in striped prison garb. Then a slide of Bob Dylan came on the screen. "People want to own the music they love."

After a lot of negotiating with the record companies, he said, "they were willing to do something with us to change the world." The iTunes Store would start with 200,000 tracks, and it would grow each day. By using the store, he said, you can own your songs, burn them on CDs, be assured of the download quality, get a preview of a song before you download it, and use it with your iMovies and iDVDs to "make the soundtrack of your life." The price? Just 99 cents, he said, less than a third of what a Starbucks latte cost. Why was it worth it? Because to get the right song from Kazaa took about fifteen minutes, rather than a minute. By spending an hour of your time to save about four dollars, he calculated, "you're working for under the minimum wage!" And one more thing . . . "With iTunes, it's not stealing anymore. It's good karma."

Clapping the loudest for that line were the heads of the record labels in the front row, including Doug Morris sitting next to Jimmy Iovine, in his usual baseball cap, and the whole crowd from Warner Music. Eddy Cue, who was in charge of the store, predicted that Apple would sell a million songs in six months. Instead the iTunes Store sold a million songs in six *days*. "This will go down in history as a turning point for the music industry," Jobs declared.

Microsoft

"We were smoked."

That was the blunt email sent to four colleagues by Jim Allchin, the Microsoft executive in charge of Windows development, at 5 p.m. the day he saw the iTunes Store. It had only one other line: "How did they get the music companies to go along?"

Later that evening a reply came from David Cole, who was running Microsoft's online business group. "When Apple brings this to Windows (I assume they won't make the mistake of not bringing it to Windows), we will really be smoked." He said that the Windows team needed "to bring this kind of solution to market," adding, "That will require focus and goal alignment around an *end-to-end service* which delivers direct user value, something we don't have today." Even though Microsoft had its own Internet service (MSN), it was not used to providing end-to-end service the way Apple was.

Bill Gates himself weighed in at 10:46 that night. His subject line, "Apple's Jobs again," indicated his frustration. "Steve Jobs's ability to focus in on a few things that count, get people who get user interface right, and market things as revolutionary are amazing things," he said. He too expressed surprise that Jobs had been able to convince the music companies to go along with his store. "This is very strange to me. The music companies' own operations offer a service that is truly unfriendly to the user. Somehow they decide to give Apple the ability to do something pretty good."

Gates also found it strange that no one else had created a service that allowed people to buy songs rather than subscribe on a monthly basis. "I am not saying this strangeness means we messed up—at least if we did, so did Real and Pressplay and MusicNet and basically everyone else," he wrote. "Now that Jobs has done it we need to move fast to get something where the user interface and Rights are as good.... I think we need some plan to prove that, even though Jobs has us a bit flat footed again, we can move quick and both match and do stuff better." It was an astonishing private admission: Microsoft had again been caught flat-footed, and it would again try to catch up by copying Apple. But like Sony, Microsoft could never make it happen, even after Jobs showed the way.

Instead Apple continued to smoke Microsoft in the way that Cole had predicted: It ported the iTunes software and store to Windows. But that took some internal agonizing. First, Jobs and his team had to decide whether they wanted the iPod to work with Windows computers. Jobs was initially opposed. "By keeping the iPod for Mac only, it was driving the sales of Macs even more than we expected," he recalled.

But lined up against him were all four of his top executives: Schiller, Rubinstein, Robbin, and Fadell. It was an argument about what the future of Apple should be. "We felt we should be in the music player business, not just in the Mac business," said Schiller.

Jobs always wanted Apple to create its own unified utopia, a magical walled garden where hardware and software and peripheral devices worked well together to create a great experience, and where the success of one product drove sales of all the companions. Now he was facing pressure to have his hottest new product work with Windows machines, and it went against his nature. "It was a really big argument for months," Jobs recalled, "me against everyone else." At one point he declared that Windows users would get to use iPods "over my dead body." But still his team kept pushing. "This *needs* to get to the PC," said Fadell.

Finally Jobs declared, "Until you can prove to me that it will make business sense, I'm not going to do it." That was actually his way of backing down. If you put aside emotion and dogma, it was easy to prove that it made business sense to allow Windows users to buy iPods. Experts were called in, sales scenarios developed, and everyone concluded this would bring in more profits. "We developed a spreadsheet," said Schiller. "Under all scenarios, there was no amount of cannibalization of Mac sales that would outweigh the sales of iPods." Jobs was sometimes willing to surrender, despite his reputation, but he never won any awards for gracious concession speeches. "Screw it," he said at one meeting where they showed him the analysis. "I'm sick of listening to you assholes. Go do whatever the hell you want."

That left another question: When Apple allowed the iPod to be compatible with Windows machines, should it also create a version of iTunes to serve as the music-management software for those Windows users? As usual, Jobs believed the hardware and software should go together: The user experience depended on the iPod working in complete sync (so to speak) with iTunes software on the computer. Schiller was opposed. "I thought that was crazy, since we don't make Windows software," Schiller recalled. "But Steve kept arguing, 'If we're going to do it, we should do it right.' "

Schiller prevailed at first. Apple decided to allow the iPod to work with Windows by using software from MusicMatch, an outside company. But the software was so clunky that it proved Jobs's point, and Apple embarked on a fast-track effort to produce iTunes for Windows. Jobs recalled:

> To make the iPod work on PCs, we initially partnered with another company that had a jukebox, gave them the secret sauce to connect to the iPod, and they did a crappy job. That was the worst of all worlds, because this other company was controlling a big piece of the user experience. So we lived with this crappy outside jukebox for about six months, and then we finally got iTunes written for Windows. In the end, you just don't want someone else to control a big part of the user experience. People may disagree with me, but I am pretty consistent about that.

Porting iTunes to Windows meant going back to all of the music companies—which had made deals to be in iTunes based on the assurance that it would be for only the small universe of Macintosh users—and negotiate again. Sony was especially resistant. Andy Lack thought it another example of Jobs changing the terms after a deal was done. It was. But by then the other labels were happy about how the iTunes Store was working and went along, so Sony was forced to capitulate.

Jobs announced the launch of iTunes for Windows in October 2003. "Here's a feature that people thought we'd never add until this happened," he said, waving his hand at the giant screen behind him. "Hell froze over," proclaimed the slide. The show included iChat appearances and videos from Mick Jagger, Dr. Dre, and Bono. "It's a very cool thing for musicians and music," Bono said of the iPod and iTunes. "That's why I'm here to kiss the corporate ass. I don't kiss everybody's."

Jobs was never prone to understatement. To the cheers of the crowd, he declared, "iTunes for Windows is probably the best Windows app ever written."

Microsoft was not grateful. "They're pursuing the same strategy that they pursued in the PC business, controlling both the hardware and software," Bill Gates told *Business Week.* "We've always done things a little bit differently than Apple in terms of giving people choice." It was not until three years later, in November 2006, that Microsoft was finally able to release its own answer to the iPod. It was called the Zune, and it looked like an iPod, though a bit clunkier. Two years later it had achieved a market share of less than 5%. Jobs was brutal about the cause of the Zune's uninspired design and market weakness:

> The older I get, the more I see how much motivations matter. The Zune was crappy because the people at Microsoft don't really love music or art the way we do. We won because we personally love music. We made the iPod for ourselves, and when you're doing something for yourself, or your best friend or family, you're not going to cheese out. If you don't love something, you're not going to go the extra mile, work the extra weekend, challenge the status quo as much.

Mr. Tambourine Man

Andy Lack's first annual meeting at Sony was in April 2003, the same week that Apple launched the iTunes Store. He had been made head of the music division four months earlier, and had spent much of that time negotiating with Jobs. In fact he arrived in Tokyo directly from Cupertino, carrying the latest version of the iPod and a description of the iTunes Store. In front of the two hundred managers gathered, he pulled the iPod out of his pocket. "Here it is," he said as CEO Nobuyuki Idei and Sony's North America head Howard Stringer looked on. "Here's the Walkman killer. There's no mystery meat. The reason you bought a music company is so that you could be the one to make a device like this. You can do better."

But Sony couldn't. It had pioneered portable music with the Walkman, it had a great record company, and it had a long history of making beautiful consumer devices. It had all of the assets to compete with Jobs's strategy of integration of hardware, software, devices, and content sales. Why did it fail? Partly because it was a company, like AOL Time Warner, that was organized into divisions (that word itself was ominous) with their own bottom lines; the goal of achieving synergy in such companies by prodding the divisions to work together was usually elusive.

Jobs did not organize Apple into semiautonomous divisions; he closely controlled all of his teams and pushed them to work as one cohesive and flexible company, with one profit-and-loss bottom line. "We don't have 'divisions' with their own P&L," said Tim Cook. "We run one P&L for the company."

In addition, like many companies, Sony worried about cannibalization. If it built a music player and service that made it easy for people to share digital songs, that might hurt sales of its record division. One of Jobs's business rules was to never be afraid of cannibalizing yourself. "If you don't cannibalize yourself, someone else will," he said. So even though an iPhone might cannibalize sales of an iPod, or an iPad might cannibalize sales of a laptop, that did not deter him.

That July, Sony appointed a veteran of the music industry, Jay Samit, to create its own iTunes-like service, called Sony Connect, which would sell songs online and allow them to play on Sony's portable music devices. "The move was immediately understood as a way to unite the sometimes conflicting electronics and content divisions," the *New York Times* reported. "That internal battle was seen by many as the reason Sony, the inventor of the Walkman and the biggest player in the portable audio market, was being trounced by Apple." Sony Connect launched in May 2004. It lasted just over three years before Sony shut it down.

Microsoft was willing to license its Windows Media software and digital rights format to other companies, just as it had licensed out its operating system in the 1980s. Jobs, on the other hand, would not license out Apple's FairPlay to other device makers; it worked only on an iPod. Nor would he allow other online stores to sell songs for use on iPods. A variety of experts said this would eventually cause Apple to lose market share, as it did in the computer wars of the 1980s. "If Apple continues to rely on a proprietary architecture," the Harvard Business School professor Clayton Christensen told *Wired*, "the iPod will likely become a niche product." (Other than in this case, Christensen was one of the world's most insightful business analysts, and Jobs was deeply influenced by his book *The Innovator's Dilemma.*) Bill Gates made the same argument. "There's nothing unique about music," he said. "This story has played out on the PC."

Rob Glaser, the founder of RealNetworks, tried to circumvent Apple's restrictions in July 2004 with a service called Harmony. He had attempted to convince Jobs to license Apple's FairPlay format to Harmony, but when that didn't happen, Glaser just reverse-engineered it and used it with the songs that Harmony sold. Glaser's strategy was that the songs sold by Harmony would play on any device, including an iPod or a Zune or a Rio, and he launched a marketing campaign with the slogan "Freedom of Choice." Jobs was furious and issued a release saying that Apple was "stunned that RealNetworks has adopted the tactics and ethics of a hacker to break into the iPod." RealNetworks responded by launching an Internet petition that demanded "Hey Apple! Don't break my iPod." Jobs kept quiet for a few months, but in October he released a new version of the iPod software that caused songs bought through Harmony to become inoperable. "Steve is a one-of-a-kind guy," Glaser said. "You know that about him when you do business with him."

In the meantime Jobs and his team—Rubinstein, Fadell, Robbin, Ive—were able to keep coming up with new versions of the iPod that extended Apple's lead. The first major revision, announced in January 2004, was the iPod Mini. Far smaller than the original iPod—just the size of a business card—it had less capacity and was about the same price. At one point Jobs decided to kill it, not seeing why anyone would want to pay the same for less. "He doesn't do sports, so he didn't relate to how it would be great on a run or in the gym," said Fadell. In fact the Mini was what truly launched the iPod to market dominance, by eliminating the competition from smaller flash-drive players. In the eighteen months after it was introduced, Apple's market share in the portable music player market shot from 31% to 74%.

The iPod Shuffle, introduced in January 2005, was even more revolutionary. Jobs learned that the shuffle feature on the iPod, which played songs in random order, had become very popular. People liked to be surprised, and they were also too lazy to keep setting up and revising their playlists. Some users even became obsessed with figuring out whether the song selection was truly random, and if so, why their iPod kept coming back to, say, the Neville Brothers. That feature led to the iPod Shuffle. As Rubinstein and Fadell were working on creating a flash player that was small and inexpensive, they kept doing things like making the screen tinier. At one point Jobs came in with a crazy suggestion: Get rid of the screen altogether. "What?!?" Fadell responded. "Just get rid of it," Jobs insisted. Fadell asked how users would navigate the songs. Jobs's insight was that you wouldn't need to navigate; the songs would play randomly. After all, they were songs you had chosen. All that was needed was a button to skip over a song if you weren't in the mood for it. "Embrace uncertainty," the ads read.

As competitors stumbled and Apple continued to innovate, music became a larger part of Apple's business. In January 2007 iPod sales were half of Apple's revenues. The device also added luster to the Apple brand. But an even bigger success was the iTunes Store. Having sold one million songs in the first six days after it was introduced in April 2003, the store went on to sell seventy million songs in its first year. In February 2006 the store sold its one billionth song when Alex Ostrovsky, sixteen, of West Bloomfield, Michigan, bought Coldplay's "Speed of Sound" and got a congratulatory call from Jobs, bestowing upon him ten iPods, an iMac, and a $10,000 music gift certificate.

The success of the iTunes Store also had a more subtle benefit. By 2011 an important new business had emerged: being the service that people trusted with their online identity and payment information. Along with Amazon, Visa, PayPal, American Express, and a few other services, Apple had built up databases of people who trusted them with their email address and credit card information to facilitate safe and easy shopping. This allowed Apple to sell, for example, a magazine subscription through its online store; when that happened, Apple, not the magazine publisher, would have a direct relationship with the subscriber. As the iTunes Store sold videos, apps, and subscriptions, it built up a database of 225 million active users by June 2011, which positioned Apple for the next age of digital commerce.

CHAPTER THIRTY-TWO

MUSIC MAN

The Sound Track of His Life

Jimmy Iovine, Bono, Jobs, and The Edge, 2004

On His iPod

As the iPod phenomenon grew, it spawned a question that was asked of presidential candidates, B-list celebrities, first dates, the queen of England, and just about anyone else with white earbuds: "What's on your iPod?" The parlor game took off when Elisabeth Bumiller wrote a piece in the *New York Times* in early 2005 dissecting the answer that President George W. Bush gave when she asked him that question. "Bush's iPod is heavy on traditional country singers," she reported. "He has selections by Van Morrison, whose 'Brown Eyed Girl' is a Bush favorite, and by John Fogerty, most predictably 'Centerfield.' " She got a *Rolling Stone* editor, Joe Levy, to analyze the selection, and he commented, "One thing that's interesting is that the president likes artists who don't like him."

"Simply handing over your iPod to a friend, your blind date, or the total stranger sitting next to you on the plane opens you up like a book," Steven Levy wrote in *The Perfect Thing*. "All somebody needs to do is scroll through your library on that click wheel, and, musically speaking, you're naked. It's not just what you like—it's *who you are*." So one day, when we were sitting in his living room listening to music, I asked Jobs to let me see his. As we sat there, he flicked through his favorite songs.

Not surprisingly, there were all six volumes of Dylan's bootleg series, including the tracks Jobs had first started worshipping when he and Wozniak were able to score them on reel-to-reel tapes years before the series was officially released. In addition, there were fifteen other Dylan albums, starting with his first, *Bob Dylan* (1962), but going only up to *Oh Mercy* (1989). Jobs had spent a lot of time arguing with Andy Hertzfeld and others that Dylan's subsequent albums, indeed any of his albums after *Blood on the Tracks* (1975), were not as powerful as his early performances. The one exception he made was Dylan's track "Things Have Changed" from the 2000 movie *Wonder Boys*. Notably his iPod did not include *Empire Burlesque* (1985), the album that Hertzfeld had brought him the weekend he was ousted from Apple.

The other great trove on his iPod was the Beatles. He included songs from seven of their albums: *A Hard Day's Night, Abbey Road, Help!, Let It Be, Magical Mystery Tour, Meet the Beatles!* and *Sgt. Pepper's Lonely Hearts Club Band.* The solo albums missed the cut. The Rolling Stones clocked in next, with six albums: *Emotional Rescue, Flashpoint, Jump Back, Some Girls, Sticky Fingers*, and *Tattoo You*. In the case of the Dylan and the Beatles albums, most were included in their entirety. But true to his belief that albums can and should be disaggregated, those of the Stones and most other artists on his iPod included only three or four cuts. His onetime girlfriend Joan Baez was amply represented by selections from four albums, including two different versions of "Love Is Just a Four-Letter Word."

His iPod selections were those of a kid from the seventies with his heart in the sixties. There were Aretha, B. B. King, Buddy Holly, Buffalo Springfield, Don McLean, Donovan, the Doors, Janis Joplin, Jefferson Airplane, Jimi Hendrix, Johnny Cash, John Mellencamp, Simon and Garfunkel, and even The Monkees ("I'm a Believer") and Sam the Sham ("Wooly Bully"). Only about a quarter of the songs were from more contemporary artists, such as 10,000 Maniacs, Alicia Keys, Black Eyed Peas, Coldplay, Dido, Green Day, John Mayer (a friend of both his and Apple), Moby (likewise), U2, Seal, and Talking Heads. As for classical music, there were a few recordings of Bach, including the Brandenburg Concertos, and three albums by Yo-Yo Ma.

Jobs told Sheryl Crow in May 2003 that he was downloading some Eminem tracks, admitting, "He's starting to grow on me." James Vincent subsequently took him to an Eminem concert. Even so, the rapper missed making it onto Jobs's iPod. As Jobs said to Vincent after the concert, "I don't know . . ." He later told me, "I respect Eminem as an artist, but I just don't want to listen to his music, and I can't relate to his values the way I can to Dylan's."

His favorites did not change over the years. When the iPad 2 came out in March 2011, he transferred his favorite music to it. One afternoon we sat in his living room as he scrolled through the songs on his new iPad and, with a mellow nostalgia, tapped on ones he wanted to hear.

We went through the usual Dylan and Beatles favorites, then he became more reflective and tapped on a Gregorian chant, "Spiritus Domini," performed by Benedictine monks. For a minute or so he zoned out, almost in a trance. "That's really beautiful," he murmured. He followed with Bach's Second Brandenburg Concerto and a fugue from *The Well-Tempered Clavier*. Bach, he declared, was his favorite classical composer. He was particularly fond of listening to the contrasts between the two versions of the "Goldberg Variations" that Glenn Gould recorded, the first in 1955 as a twenty-two-year-old little-known pianist and the second in 1981, a year before he died. "They're like night and day," Jobs said after playing them sequentially one afternoon. "The first is an exuberant, young, brilliant piece, played so fast it's a revelation. The later one is so much more spare and stark. You sense a very deep soul who's been through a lot in life. It's deeper and wiser." Jobs was on his third medical leave that afternoon when he played both versions, and I asked which he liked better. "Gould liked the later version much better," he said. "I used to like the earlier, exuberant one. But now I can see where he was coming from."

He then jumped from the sublime to the sixties: Donovan's "Catch the Wind." When he noticed me look askance, he protested, "Donovan did some really good stuff, really." He punched up "Mellow Yellow," and then admitted that perhaps it was not the best example. "It sounded better when we were young."

I asked what music from our childhood actually held up well these days. He scrolled down the list on his iPad and called up the Grateful Dead's 1969 song "Uncle John's Band." He nodded along with the lyrics: "When life looks like Easy Street, there is danger at your door." For a moment we were back at that tumultuous time when the mellowness of the sixties was ending in discord. "Whoa, oh, what I want to know is, are you kind?"

Then he turned to Joni Mitchell. "She had a kid she put up for adoption," he said. "This song is about her little girl." He tapped on "Little Green," and we listened to the mournful melody and lyrics that describe the feelings of a mother who gives up a child. "So you sign all the papers in the family name / You're sad and you're sorry, but you're not ashamed." I asked whether he still often thought about being put up for adoption. "No, not much," he said. "Not too often."

These days, he said, he thought more about getting older than about his birth. That led him to play Joni Mitchell's greatest song, "Both Sides Now," with its lyrics about being older and wiser: "I've looked at life from both sides now, / From win and lose, and still somehow, / It's life's illusions I recall, / I really don't know life at all." As Glenn Gould had done with Bach's "Goldberg Variations," Mitchell had recorded "Both Sides Now" many years apart, first in 1969 and then in an excruciatingly haunting slow version in 2000. He played the latter. "It's interesting how people age," he noted.

Some people, he added, don't age well even when they are young. I asked who he had in mind. "John Mayer is one of the best guitar players who's ever lived, and I'm just afraid he's blowing it big time," Jobs replied. Jobs liked Mayer and occasionally had him over for dinner in Palo Alto. When he was twenty-seven, Mayer appeared at the January 2004 Macworld, where Jobs introduced GarageBand, and he became a fixture at the event most years. Jobs punched up Mayer's hit "Gravity." The lyrics are about a guy filled with love who inexplicably dreams of ways to throw it away: "Gravity is working against me, / And gravity wants to bring me down." Jobs shook his head and commented, "I think he's a really good kid underneath, but he's just been out of control."

At the end of the listening session, I asked him a well-worn question: the Beatles or the Stones? "If the vault was on fire and I could grab only one set of master tapes, I would grab the Beatles," he answered. "The hard one would be between the Beatles and Dylan. Somebody else could have replicated the Stones. No one could have been Dylan or the Beatles." As he was ruminating about how fortunate we were to have all of them when we were growing up, his son, then eighteen, came in the room. "Reed doesn't understand," Jobs lamented. Or perhaps he did. He was wearing a Joan Baez T-shirt, with the words "Forever Young" on it.

Bob Dylan

The only time Jobs can ever recall being tongue-tied was in the presence of Bob Dylan. He was playing near Palo Alto in October 2004, and Jobs was recovering from his first cancer surgery. Dylan was not a gregarious man, not a Bono or a Bowie. He was never Jobs's friend, nor did he care to be. He did, however, invite Jobs to visit him at his hotel before the concert. Jobs recalled:

> We sat on the patio outside his room and talked for two hours. I was really nervous, because he was one of my heroes. And I was also afraid that he wouldn't be really smart anymore, that he'd be a caricature of himself, like happens to a lot of people. But I was delighted. He was as sharp as a tack. He was everything I'd hoped. He was really open and honest. He was just telling me about his life and about writing his songs. He said, "They just came through me, it wasn't like I was having

> to compose them. That doesn't happen anymore, I just can't write them that way anymore." Then he paused and said to me with his raspy voice and little smile, "But I still can sing them."

The next time Dylan played nearby, he invited Jobs to drop by his tricked-up tour bus just before the concert. When Dylan asked what his favorite song was, Jobs said "One Too Many Mornings." So Dylan sang it that night. After the concert, as Jobs was walking out the back, the tour bus came by and screeched to a stop. The door flipped open. "So, did you hear my song I sang for you?" Dylan rasped. Then he drove off. When Jobs tells the tale, he does a pretty good impression of Dylan's voice. "He's one of my all-time heroes," Jobs recalled. "My love for him has grown over the years, it's ripened. I can't figure out how he did it when he was so young."

A few months after seeing him in concert, Jobs came up with a grandiose plan. The iTunes Store should offer a digital "boxed set" of every Dylan song every recorded, more than seven hundred in all, for $199. Jobs would be the curator of Dylan for the digital age. But Andy Lack of Sony, which was Dylan's label, was in no mood to make a deal without some serious concessions regarding iTunes. In addition, Lack felt the price was too low and would cheapen Dylan. "Bob is a national treasure," said Lack, "and Steve wanted him on iTunes at a price that commoditized him." It got to the heart of the problems that Lack and other record executives were having with Jobs: He was getting to set the price points, not them. So Lack said no.

"Okay, then I will call Dylan directly," Jobs said. But it was not the type of thing that Dylan ever dealt with, so it fell to his agent, Jeff Rosen, to sort things out.

"It's a really bad idea," Lack told Rosen, showing him the numbers. "Bob is Steve's hero. He'll sweeten the deal." Lack had both a professional and a personal desire to fend Jobs off, even to yank his chain a bit. So he made an offer to Rosen. "I will write you a check for a million dollars tomorrow if you hold off for the time being." As Lack later explained, it was an advance against future royalties, "one of those accounting things record companies do." Rosen called back forty-five minutes later and accepted. "Andy worked things out with us and asked us not to do it, which we didn't," he recalled. "I think Andy gave us some sort of an advance to hold off doing it."

By 2006, however, Lack had stepped aside as the CEO of what was by then Sony BMG, and Jobs reopened negotiations. He sent Dylan an iPod with all of his songs on it, and he showed Rosen the type of marketing campaign that Apple could mount. In August he announced a grand deal. It allowed Apple to sell the $199 digital boxed set of all the songs Dylan ever recorded, plus the exclusive right to offer Dylan's new album, *Modern Times*, for pre-release orders. "Bob Dylan is one of the most respected poets and musicians of our time, and he is a personal hero of mine," Jobs said at the announcement. The 773-track set included forty-two rarities, such as a 1961 tape of "Wade in the Water" made in a Minnesota hotel, a 1962 version of "Handsome Molly" from a live concert at the Gaslight Café in Greenwich Village, the truly awesome rendition of "Mr. Tambourine Man" from the 1964 Newport Folk Festival (Jobs's favorite), and an acoustic version of "Outlaw Blues" from 1965.

As part of the deal, Dylan appeared in a television ad for the iPod, featuring his new album, *Modern Times*. This was one of the most astonishing cases of flipping the script since Tom Sawyer persuaded his friends to whitewash the fence. In the past, getting celebrities to do an ad required paying them a lot of money. But by 2006 the tables were turned. Major artists *wanted* to appear in iPod ads; the exposure would guarantee success. James Vincent had predicted this a few years earlier, when Jobs said he had contacts with many musicians and could pay them to appear in ads. "No, things are going to soon change," Vincent replied. "Apple is a different kind of brand, and it's cooler than the brand of most artists. We should talk about the opportunity we offer the bands, not pay them."

Lee Clow recalled that there was actually some resistance among the younger staffers at Apple and the ad agency to using Dylan. "They wondered whether he was still cool enough," Clow said. Jobs would hear none of that. He was thrilled to have Dylan.

Jobs became obsessed by every detail of the Dylan commercial. Rosen flew to Cupertino so that they could go through the album and pick the song they wanted to use, which ended up being "Someday

Baby." Jobs approved a test video that Clow made using a stand-in for Dylan, which was then shot in Nashville with Dylan himself. But when it came back, Jobs hated it. It wasn't distinctive enough. He wanted a new style. So Clow hired another director, and Rosen was able to convince Dylan to retape the entire commercial. This time it was done with a gently backlit cowboy-hatted Dylan sitting on a stool, strumming and singing, while a hip woman in a newsboy cap dances with her iPod. Jobs loved it.

The ad showed the halo effect of the iPod's marketing: It helped Dylan win a younger audience, just as the iPod had done for Apple computers. Because of the ad, Dylan's album was number one on the *Billboard* chart its first week, topping hot-selling albums by Christina Aguilera and Outkast. It was the first time Dylan had reached the top spot since *Desire* in 1976, thirty years earlier. *Ad Age* headlined Apple's role in propelling Dylan. "The iTunes spot wasn't just a run-of-the-mill celebrity-endorsement deal in which a big brand signs a big check to tap into the equity of a big star," it reported. "This one flipped the formula, with the all-powerful Apple brand giving Mr. Dylan access to younger demographics and helping propel his sales to places they hadn't been since the Ford administration."

The Beatles

Among Jobs's prized CDs was a bootleg that contained a dozen or so taped sessions of the Beatles revising "Strawberry Fields Forever." It became the musical score to his philosophy of how to perfect a product. Andy Hertzfeld had found the CD and made a copy of it for Jobs in 1986, though Jobs sometimes told folks that it had come from Yoko Ono. Sitting in the living room of his Palo Alto home one day, Jobs rummaged around in some glass-enclosed bookcases to find it, then put it on while describing what it had taught him:

> It's a complex song, and it's fascinating to watch the creative process as they went back and forth and finally created it over a few months. Lennon was always my favorite Beatle. [He laughs as Lennon stops during

> the first take and makes the band go back and revise a chord.] Did you hear that little detour they took? It didn't work, so they went back and started from where they were. It's so raw in this version. It actually makes them sound like mere mortals. You could actually imagine other people doing this, up to this version. Maybe not writing and conceiving it, but certainly playing it. Yet they just didn't stop. They were such perfectionists they kept it going and going. This made a big impression on me when I was in my thirties. You could just tell how much they worked at this.
>
> They did a bundle of work between each of these recordings. They kept sending it back to make it closer to perfect. [As he listens to the third take, he points out how the instrumentation has gotten more complex.] The way we build stuff at Apple is often this way. Even the number of models we'd make of a new notebook or iPod. We would start off with a version and then begin refining and refining, doing detailed models of the design, or the buttons, or how a function operates. It's a lot of work, but in the end it just gets better, and soon it's like, "Wow, how did they do that?!? Where are the screws?"

It was thus understandable that Jobs was driven to distraction by the fact that the Beatles were not on iTunes.

His struggle with Apple Corps, the Beatles' business holding company, stretched more than three decades, causing too many journalists to use the phrase "long and winding road" in stories about the relationship. It began in 1978, when Apple Computers, soon after its launch, was sued by Apple Corps for trademark infringement, based on the fact that the Beatles' former recording label was called Apple. The suit was settled three years later, when Apple Computers paid Apple Corps $80,000. The settlement had what seemed back then an innocuous stipulation: The Beatles would not produce any computer equipment and Apple would not market any music products.

The Beatles kept their end of the bargain; none of them ever produced any computers. But Apple ended up wandering into the music business. It got sued again in 1991, when the Mac incorporated the ability to play musical files, then again in 2003, when the iTunes Store was launched. The legal issues were finally resolved in 2007, when

Apple made a deal to pay Apple Corps $500 million for all worldwide rights to the name, and then licensed back to the Beatles the right to use Apple Corps for their record and business holdings.

Alas, this did not resolve the issue of getting the Beatles onto iTunes. For that to happen, the Beatles and EMI Music, which held the rights to most of their songs, had to negotiate their own differences over how to handle the digital rights. "The Beatles all want to be on iTunes," Jobs later recalled, "but they and EMI are like an old married couple. They hate each other but can't get divorced. The fact that my favorite band was the last holdout from iTunes was something I very much hoped I would live to resolve." As it turned out, he would.

Bono

Bono, the lead singer of U2, deeply appreciated Apple's marketing muscle. He was confident that his Dublin-based band was still the best in the world, but in 2004 it was trying, after almost thirty years together, to reinvigorate its image. It had produced an exciting new album with a song that the band's lead guitarist, The Edge, declared to be "the mother of all rock tunes." Bono knew he needed to find a way to get it some traction, so he placed a call to Jobs.

"I wanted something specific from Apple," Bono recalled. "We had a song called 'Vertigo' that featured an aggressive guitar riff that I knew would be contagious, but only if people were exposed to it many, many times." He was worried that the era of promoting a song through airplay on the radio was over. So Bono visited Jobs at home in Palo Alto, walked around the garden, and made an unusual pitch. Over the years U2 had spurned offers as high as $23 million to be in commercials. Now he wanted Jobs to use the band in an iPod commercial for free—or at least as part of a mutually beneficial package. "They had never done a commercial before," Jobs later recalled. "But they were getting ripped off by free downloading, they liked what we were doing with iTunes, and they thought we could promote them to a younger audience."

Any other CEO would have jumped into a mosh pit to have U2 in an ad, but Jobs pushed back a bit. Apple didn't feature recognizable people in the iPod ads, just silhouettes. (The Dylan ad had not yet been made.) "You have silhouettes of fans," Bono replied, "so couldn't the next phase be silhouettes of artists?" Jobs said it sounded like an idea worth exploring. Bono left a copy of the unreleased album, *How to Dismantle an Atomic Bomb*, for Jobs to hear. "He was the only person outside the band who had it," Bono said.

A round of meetings ensued. Jobs flew down to talk to Jimmy Iovine, whose Interscope records distributed U2, at his house in the Holmby Hills section of Los Angeles. The Edge was there, along with U2's manager, Paul McGuinness. Another meeting took place in Jobs's kitchen, with McGuinness writing down the deal points in the back of his diary. U2 would appear in the commercial, and Apple would vigorously promote the album in multiple venues, ranging from billboards to the iTunes homepage. The band would get no direct fee, but it would get royalties from the sale of a special U2 edition of the iPod. Bono believed, like Lack, that the musicians should get a royalty on each iPod sold, and this was his small attempt to assert the principle in a limited way for his band. "Bono and I asked Steve to make us a black one," Iovine recalled. "We weren't just doing a commercial sponsorship, we were making a co-branding deal."

"We wanted our own iPod, something distinct from the regular white ones," Bono recalled. "We wanted black, but Steve said, 'We've tried other colors than white, and they don't work.' "A few days later Jobs relented and accepted the idea, tentatively.

The commercial interspersed high-voltage shots of the band in partial silhouette with the usual silhouette of a dancing woman listening to an iPod. But even as it was being shot in London, the agreement with Apple was unraveling. Jobs began having second thoughts about the idea of a special black iPod, and the royalty rates were not fully pinned down. He called James Vincent, at Apple's ad agency, and told him to call London and put things on hold. "I don't think it's going to happen," Jobs said. "They don't realize how much value we are giving them, it's going south. Let's think of some other ad to do." Vincent, a lifelong U2 fan, knew how big the ad would be, both for the band and Apple, and begged for the chance to call Bono to try to get things on track. Jobs gave him Bono's mobile number, and he reached the singer in his kitchen in Dublin.

Bono was also having a few second thoughts. "I don't think this is going to work," he told Vincent. "The band is reluctant." Vincent asked what the problem was. "When we were teenagers in Dublin, we said we would never do naff stuff," Bono replied. Vincent, despite being British and familiar with rock slang, said he didn't know what that meant. "Doing rubbishy things for money," Bono explained. "We are all about our fans. We feel like we'd be letting them down if we went in an ad. It doesn't feel right. I'm sorry we wasted your time."

Vincent asked what more Apple could do to make it work. "We are giving you the most important thing we have to give, and that's our music," said Bono. "And what are you giving us back? Advertising, and our fans will think it's for you. We need something more." Vincent replied that the offer of the special U2 edition of the iPod and the royalty arrangement was a huge deal. "That's the most prized thing we have to give," he told Bono.

The singer said he was ready to try to put the deal back together, so Vincent immediately called Jony Ive, another big U2 fan (he had first seen them in concert in Newcastle in 1983), and described the situation. Then he called Jobs and suggested he send Ive to Dublin to show what the black iPod would look like. Jobs agreed. Vincent called Bono back, and asked if he knew Jony Ive, unaware that they had met before and admired each other. "Know Jony Ive?" Bono laughed. "I love that guy. I drink his bathwater."

"That's a bit strong," Vincent replied, "but how about letting him come visit and show how cool your iPod would be?"

"I'm going to pick him up myself in my Maserati," Bono answered. "He's going to stay at my house, I'm going to take him out, and I will get him really drunk."

The next day, as Ive headed toward Dublin, Vincent had to fend off Jobs, who was still having second thoughts. "I don't know if we're doing the right thing," he said. "We don't want to do this for anyone else." He was worried about setting the precedent of artists getting a royalty from each iPod sold. Vincent assured him that the U2 deal would be special.

"Jony arrived in Dublin and I put him up at my guest house, a serene place over a railway track with a view of the sea," Bono recalled. "He shows me this beautiful black iPod with a deep red click wheel, and I say okay, we'll do it." They went to a local pub, hashed out some of the details, and then called Jobs in Cupertino to see if he would agree. Jobs haggled for a while over each detail of the finances, and over the design, before he finally embraced the deal. That impressed Bono. "It's actually amazing that a CEO cares that much about detail," he said. When it was resolved, Ive and Bono settled into some serious drinking. Both are comfortable in pubs. After a few pints, they decided to call Vincent back in California. He was not home, so Bono left a message on his answering machine, which Vincent made sure never to erase. "I'm sitting here in bubbling Dublin with your friend Jony," it said. "We're both a bit drunk, and we're happy with this wonderful iPod and I can't even believe it exists and I'm holding it in my hand. Thank you!"

Jobs rented a theater in San Jose for the unveiling of the TV commercial and special iPod. Bono and The Edge joined him onstage. The album sold 840,000 copies in its first week and debuted at number one on the *Billboard* chart. Bono told the press afterward that he had done the commercial without charge because "U2 will get as much value out of the commercial as Apple will." Jimmy Iovine added that it would allow the band to "reach a younger audience."

What was remarkable was that associating with a computer and electronics company was the best way for a rock band to seem hip and appeal to young people. Bono later explained that not all corporate sponsorships were deals with the devil. "Let's have a look," he told Greg Kot, the *Chicago Tribune* music critic. "The 'devil' here is a bunch of creative minds, more creative than a lot of people in rock bands. The lead singer is Steve Jobs. These men have helped design the most beautiful art object in music culture since the electric guitar. That's the iPod. The job of art is to chase ugliness away."

Bono got Jobs to do another deal with him in 2006, this one for his Product Red campaign that raised money and awareness to fight AIDS in Africa. Jobs was never much interested in philanthropy, but he agreed to do a special red iPod as part of Bono's campaign. It was not a wholehearted commitment. He balked, for example, at using the campaign's signature treatment of putting the name of the company in parentheses with the word "red" in superscript after it, as in (APPLE)$^{\text{RED}}$. "I don't want Apple in parentheses," Jobs insisted. Bono replied, "But Steve, that's how we show unity for our cause." The conversation got heated—to the F-you stage—before they agreed to sleep on it. Finally Jobs compromised, sort of. Bono could do what he wanted in his ads, but Jobs would never put Apple in parentheses on any of his products or in any of his stores. The iPod was labeled (PRODUCT)$^{\text{RED}}$, not (APPLE)$^{\text{RED}}$.

"Steve can be sparky," Bono recalled, "but those moments have made us closer friends, because there are not many people in your life where you can have those robust discussions. He's very opinionated. After our shows, I talk to him and he's always got an opinion." Jobs and his family occasionally visited Bono and his wife and four kids at their home near Nice on the French Riviera. On one vacation, in 2008, Jobs chartered a boat and moored it near Bono's home. They ate meals together, and Bono played tapes of the songs U2 was preparing for what became the *No Line on the Horizon* album. But despite the friendship, Jobs was still a tough negotiator. They tried to make a deal for another ad and special release of the song "Get On Your Boots," but they could not come to terms. When Bono hurt his back in 2010 and had to cancel a tour, Powell sent him a gift basket with a DVD of the comedy duo Flight of the Conchords, the book *Mozart's Brain and the Fighter Pilot*, honey from her beehives, and pain cream. Jobs wrote a note and attached it to the last item, saying, "Pain Cream—I love this stuff."

Yo-Yo Ma

There was one classical musician Jobs revered both as a person and as a performer: Yo-Yo Ma, the versatile virtuoso who is as sweet and profound as the tones he creates on his cello. They had met in 1981, when Jobs was at the Aspen Design Conference and Ma was at the Aspen Music Festival. Jobs tended to be deeply moved by artists who displayed purity, and he became a fan. He invited Ma to play at his wedding, but he was out of the country on tour. He came by the Jobs house a few years later, sat in the living room, pulled out his 1733 Stradivarius cello, and played Bach. "This is what I would have played for your wedding," he told them. Jobs teared up and told him, "You playing is the best argument I've ever heard for the existence of God, because I don't really believe a human alone can do this." On a subsequent visit Ma allowed Jobs's daughter Erin to hold the cello while they sat around the kitchen. By that time Jobs had been struck by cancer, and he made Ma promise to play at his funeral.

CHAPTER THIRTY-THREE

PIXAR'S FRIENDS

. . . and Foes

A Bug's Life

When Apple developed the iMac, Jobs drove with Jony Ive to show it to the folks at Pixar. He felt that the machine had the spunky personality that would appeal to the creators of Buzz Lightyear and Woody, and he loved the fact that Ive and John Lasseter shared the talent to connect art with technology in a playful way.

Pixar was a haven where Jobs could escape the intensity in Cupertino. At Apple, the managers were often excitable and exhausted, Jobs tended to be volatile, and people felt nervous about where they stood with him. At Pixar, the storytellers and illustrators seemed more serene and behaved more gently, both with each other and even with Jobs. In other words, the tone at each place was set at the top, by Jobs at Apple, but by Lasseter at Pixar.

Jobs reveled in the earnest playfulness of moviemaking and got passionate about the algorithms that enabled such magic as allowing computer-generated raindrops to refract sunbeams or blades of grass to wave in the wind. But he was able to restrain himself from trying to control the creative process. It was at Pixar that he learned to let other creative people flourish and take the lead. Largely it was because he loved Lasseter, a gentle artist who, like Ive, brought out the best in Jobs.

Jobs's main role at Pixar was deal making, in which his natural intensity was an asset. Soon after the release of *Toy Story*, he clashed with Jeffrey Katzenberg, who had left Disney in the summer of 1994 and joined with Steven Spielberg and David Geffen to start DreamWorks SKG. Jobs believed that his Pixar team had told Katzenberg, while he was still at Disney, about its proposed second movie, *A Bug's Life*, and that he had then stolen the idea of an animated insect movie when he decided to produce *Antz* at DreamWorks. "When Jeffrey was still running Disney animation, we pitched him on *A Bug's Life*," Jobs said. "In sixty years of animation history, nobody had thought of doing an animated movie about insects, until Lasseter. It was one of his brilliant creative sparks. And Jeffrey left and went to DreamWorks and all of a sudden had this idea for an animated movie about—Oh!—insects. And he pretended he'd never heard the pitch. He lied. He lied through his teeth."

Actually, not. The real story is a bit more interesting. Katzenberg never heard the *Bug's Life* pitch while at Disney. But after he left for DreamWorks, he stayed in touch with Lasseter, occasionally pinging him with one of his typical "Hey buddy, how you doing just checking in" quick phone calls. So when Lasseter happened to be at the Technicolor facility on the Universal lot, where DreamWorks was also located, he called Katzenberg and dropped by with a couple of colleagues. When Katzenberg asked what they were doing next, Lasseter told him. "We described to him *A Bug's Life*, with an ant as the main character, and told him the whole story of him organizing the other ants and enlisting a group of circus performer insects to fight off the grasshoppers," Lasseter recalled. "I should have been wary. Jeffrey kept asking questions about when it would be released."

Lasseter began to get worried when, in early 1996, he heard rumors that DreamWorks might be making its own computer-animated movie about ants. He called Katzenberg and asked him point-blank. Katzenberg hemmed, hawed, and asked where Lasseter had heard that. Lasseter asked again, and Katzenberg admitted it was true. "How could you?" yelled Lasseter, who very rarely raised his voice.

"We had the idea long ago," said Katzenberg, who explained that it had been pitched to him by a development director at DreamWorks.

"I don't believe you," Lasseter replied.

Katzenberg conceded that he had sped up *Antz* as a way to counter his former colleagues at Disney. DreamWorks' first major picture was to be *Prince of Egypt*, which was scheduled to be released for Thanksgiving 1998, and he was appalled when he heard that Disney was planning to release Pixar's *A Bug's Life* that same weekend. So he had rushed *Antz* into production to force Disney to change the release date of *A Bug's Life*.

"Fuck you," replied Lasseter, who did not normally use such language. He didn't speak to Katzenberg for another thirteen years.

Jobs was furious, and he was far more practiced than Lasseter at giving vent to his emotions. He called Katzenberg and started yelling. Katzenberg made an offer: He would delay production of *Antz* if Jobs and Disney would move *A Bug's Life* so that it didn't compete with *Prince of Egypt*. "It was a blatant extortion attempt, and I didn't go for it," Jobs recalled. He told Katzenberg there was nothing he could do to make Disney change the release date.

"Of course you can," Katzenberg replied. "You can move mountains. You taught me how!" He said that when Pixar was almost bankrupt, he had come to its rescue by giving it the deal to do *Toy Story*. "I was the one guy there for you back then, and now you're allowing them to use you to screw me." He suggested that if Jobs wanted to, he could simply slow down production on *A Bug's Life* without telling Disney. If he did, Katzenberg said, he would put *Antz* on hold. "Don't even go there," Jobs replied.

Katzenberg had a valid gripe. It was clear that Eisner and Disney were using the Pixar movie to get back at him for leaving Disney and starting a rival animation studio. "*Prince of Egypt* was the first thing we were making, and they scheduled something for our announced release date just to be hostile," he said. "My view was like that of the Lion King, that if you stick your hand in my cage and paw me, watch out."

No one backed down, and the rival ant movies provoked a press frenzy. Disney tried to keep Jobs quiet, on the theory that playing up the rivalry would serve to help *Antz*, but he was a man not easily muzzled. "The bad guys rarely win," he told the *Los Angeles Times*. In response, DreamWorks' savvy marketing maven, Terry Press, suggested, "Steve Jobs should take a pill."

Antz was released at the beginning of October 1998. It was not a bad movie. Woody Allen voiced the part of a neurotic ant living in a conformist society who yearns to express his individualism. "This is the kind of Woody Allen comedy Woody Allen no longer makes," *Time* wrote. It grossed a respectable $91 million domestically and $172 million worldwide.

A Bug's Life came out six weeks later, as planned. It had a more epic plot, which reversed Aesop's tale of "The Ant and the Grasshopper," plus a greater technical virtuosity, which allowed such startling details as the view of grass from a bug's vantage point. *Time* was much more effusive about it. "Its design work is so stellar—a wide-screen Eden of leaves and labyrinths populated by dozens of ugly, buggy, cuddly cutups—that it makes the DreamWorks film seem, by comparison, like radio," wrote Richard Corliss. It did twice as well as *Antz* at the box office, grossing $163 million domestically and $363 million worldwide. (It also beat *Prince of Egypt*.)

A few years later Katzenberg ran into Jobs and tried to smooth things over. He insisted that he had never heard the pitch for *A Bug's Life* while at Disney; if he had, his settlement with Disney would have given him a share of the profits, so it's not something he would lie about. Jobs laughed, and accepted as much. "I asked you to move your release date, and you wouldn't, so you can't be mad at me for protecting my child," Katzenberg told him. He recalled that Jobs "got really calm and Zen-like" and said he understood. But Jobs later said that he never really forgave Katzenberg:

> Our film toasted his at the box office. Did that feel good? No, it still felt awful, because people started saying how everyone in Hollywood was doing insect movies. He took the brilliant originality away from John, and that can never be replaced. That's unconscionable, so I've never trusted him, even after he tried to make amends. He came up to

> me after he was successful with *Shrek* and said, "I'm a changed man, I'm finally at peace with myself," and all this crap. And it was like, give me a break, Jeffrey.

For his part, Katzenberg was much more gracious. He considered Jobs one of the "true geniuses in the world," and he learned to respect him despite their volatile dealings.

More important than beating *Antz* was showing that Pixar was not a one-hit wonder. *A Bug's Life* grossed as much as *Toy Story* had, proving that the first success was not a fluke. "There's a classic thing in business, which is the second-product syndrome," Jobs later said. It comes from not understanding what made your first product so successful. "I lived through that at Apple. My feeling was, if we got through our second film, we'd make it."

Steve's Own Movie

Toy Story 2, which came out in November 1999, was even bigger, with a $485 million gross worldwide. Given that Pixar's success was now assured, it was time to start building a showcase headquarters. Jobs and the Pixar facilities team found an abandoned Del Monte fruit cannery in Emeryville, an industrial neighborhood between Berkeley and Oakland, just across the Bay Bridge from San Francisco. They tore it down, and Jobs commissioned Peter Bohlin, the architect of the Apple stores, to design a new building for the sixteen-acre plot.

Jobs obsessed over every aspect of the new building, from the overall concept to the tiniest detail regarding materials and construction. "Steve had this firm belief that the right kind of building can do great things for a culture," said Pixar's president Ed Catmull. Jobs controlled the creation of the building as if he were a director sweating each scene of a film. "The Pixar building was Steve's own movie," Lasseter said.

Lasseter had originally wanted a traditional Hollywood studio, with separate buildings for various projects and bungalows for development teams. But the Disney folks said they didn't like their new campus because the teams felt isolated, and Jobs agreed. In fact he decided they should go to the other extreme: one huge building around a central atrium designed to encourage random encounters.

Despite being a denizen of the digital world, or maybe because he knew all too well its isolating potential, Jobs was a strong believer in face-to-face meetings. "There's a temptation in our networked age to think that ideas can be developed by email and iChat," he said. "That's crazy. Creativity comes from spontaneous meetings, from random discussions. You run into someone, you ask what they're doing, you say 'Wow,' and soon you're cooking up all sorts of ideas."

So he had the Pixar building designed to promote encounters and unplanned collaborations. "If a building doesn't encourage that, you'll lose a lot of innovation and the magic that's sparked by serendipity," he said. "So we designed the building to make people get out of their offices and mingle in the central atrium with people they might not otherwise see." The front doors and main stairs and corridors all led to the atrium, the café and the mailboxes were there, the conference rooms had windows that looked out onto it, and the six-hundred-seat theater and two smaller screening rooms all spilled into it. "Steve's theory worked from day one," Lasseter recalled. "I kept running into people I hadn't seen for months. I've never seen a building that promoted collaboration and creativity as well as this one."

Jobs even went so far as to decree that there be only two huge bathrooms in the building, one for each gender, connected to the atrium. "He felt that very, very strongly," recalled Pam Kerwin, Pixar's general manager. "Some of us felt that was going too far. One pregnant woman said she shouldn't be forced to walk for ten minutes just to go to the bathroom, and that led to a big fight." It was one of the few times that Lasseter disagreed with Jobs. They reached a compromise: there would be two sets of bathrooms on either side of the atrium on both of the two floors.

Because the building's steel beams were going to be visible, Jobs pored over samples from manufacturers across the country to see which had the best color and texture. He chose a mill in Arkansas, told it to blast the steel to a pure color, and made sure the truckers used caution not to nick any of it. He also insisted that all the beams be bolted together, not welded. "We sandblasted the steel and clear-coated it, so you can actually see what it's like," he recalled. "When the steelworkers were putting up the beams, they would bring their families on the weekend to show them."

The wackiest piece of serendipity was "The Love Lounge." One of the animators found a small door on the back wall when he moved into his office. It opened to a low corridor that you could crawl through to a room clad in sheet metal that provided access to the air-conditioning valves. He and his colleagues commandeered the secret room, festooned it with Christmas lights and lava lamps, and furnished it with benches upholstered in animal prints, tasseled pillows, a fold-up cocktail table, liquor bottles, bar equipment, and napkins that read "The Love Lounge." A video camera installed in the corridor allowed occupants to monitor who might be approaching.

Lasseter and Jobs brought important visitors there and had them sign the wall. The signatures include Michael Eisner, Roy Disney, Tim Allen, and Randy Newman. Jobs loved it, but since he wasn't a drinker he sometimes referred to it as the Meditation Room. It reminded him, he said, of the one that he and Daniel Kottke had at Reed, but without the acid.

The Divorce

In testimony before a Senate committee in February 2002, Michael Eisner blasted the ads that Jobs had created for Apple's iTunes. "There are computer companies that have full-page ads and billboards that say: Rip, mix, burn," he declared. "In other words, they can create a theft and distribute it to all their friends if they buy this particular computer."

This was not a smart comment. It misunderstood the meaning of "rip" and assumed it involved ripping someone off, rather than importing files from a CD to a computer. More significantly, it truly pissed off Jobs, as Eisner should have known. That too was not smart. Pixar had recently released the fourth movie in its Disney deal, *Monsters, Inc.*, which turned out to be the most successful of them all, with $525 million in worldwide gross. Disney's Pixar deal was again coming up for renewal, and Eisner had not made it easier by publicly poking a stick at his partner's eye. Jobs was so incredulous he called a Disney executive to vent: "Do you know what Michael just did to me?"

Eisner and Jobs came from different backgrounds and opposite coasts, but they were similar in being strong-willed and without much inclination to find compromises. They both had a passion for making good products, which often meant micromanaging details and not sugarcoating their criticisms. Watching Eisner take repeated rides on the Wildlife Express train through Disney World's Animal Kingdom and coming up with smart ways to improve the customer experience was like watching Jobs play with the interface of an iPod and find ways it could be simplified. Watching them manage people was a less edifying experience.

Both were better at pushing people than being pushed, which led to an unpleasant atmosphere when they started trying to do it to each other. In a disagreement, they tended to assert that the other party was lying. In addition, neither Eisner nor Jobs seemed to believe that he could learn anything from the other; nor would it have occurred to either even to fake a bit of deference by pretending to have anything to learn. Jobs put the onus on Eisner:

> The worst thing, to my mind, was that Pixar had successfully reinvented Disney's business, turning out great films one after the other while Disney turned out flop after flop. You would think the CEO of Disney would be curious how Pixar was doing that. But during the twenty-year relationship, he visited Pixar for a total of about two and a half hours, only to give little congratulatory speeches. He was never curious. I was amazed. Curiosity is very important.

That was overly harsh. Eisner had been up to Pixar a bit more than that, including visits when Jobs wasn't with him. But it was true that he showed little curiosity about the artistry or technology at the studio. Jobs likewise didn't spend much time trying to learn from Disney's management.

The open sniping between Jobs and Eisner began in the summer of 2002. Jobs had always admired the creative spirit of the great Walt Disney, especially because he had nurtured a company to last for generations. He viewed Walt's nephew Roy as an embodiment of this historic legacy and spirit. Roy was still on the Disney board, despite his own growing estrangement from Eisner, and Jobs let him know that he would not renew the Pixar-Disney deal as long as Eisner was still the CEO.

Roy Disney and Stanley Gold, his close associate on the Disney board, began warning other directors about the Pixar problem. That prompted Eisner to send the board an intemperate email in late August 2002. He was confident that Pixar would eventually renew its deal, he said, partly because Disney had rights to the Pixar movies and characters that had been made thus far. Plus, he said, Disney would be in a better negotiating position in a year, after Pixar finished *Finding Nemo*. "Yesterday we saw for the second time the new Pixar movie, *Finding Nemo*, that comes out next May," he wrote. "This will be a reality check for those guys. It's okay, but nowhere near as good as their previous films. Of course they think it is great." There were two major problems with this email: It leaked to the *Los Angeles Times*, provoking Jobs to go ballistic, and Eisner's assessment of the movie was wrong, very wrong.

Finding Nemo became Pixar's (and Disney's) biggest hit thus far. It easily beat out *The Lion King* to become, for the time being, the most successful animated movie in history. It grossed $340 million domestically and $868 million worldwide. Until 2010 it was also the most popular DVD of all time, with forty million copies sold, and spawned some of the most popular rides at Disney theme parks. In addition, it was a richly textured, subtle, and deeply beautiful artistic achievement that won the Oscar for best animated feature. "I liked the film because it was about taking risks and learning to let those you love take risks," Jobs said. Its success added $183 million to Pixar's cash reserves, giving it a hefty war chest of $521 million for the final showdown with Disney.

Shortly after *Finding Nemo* was finished, Jobs made Eisner an offer that was so one-sided it was clearly meant to be rejected. Instead of a fifty-fifty split on revenues, as in the existing deal, Jobs proposed a new arrangement in which Pixar would own outright the films it made and the characters in them, and it would merely pay Disney a 7.5% fee to distribute the movies. Plus, the last two films under the existing deal—*The Incredibles* and *Cars* were the ones in the works—would shift to the new distribution deal.

Eisner, however, held one powerful trump card. Even if Pixar didn't renew, Disney had the right to make sequels of *Toy Story* and the other movies that Pixar had made, and it owned all the characters, from Woody to Nemo, just as it owned Mickey Mouse and Donald Duck. Eisner was already planning—or threatening—to have Disney's own animation studio do a *Toy Story 3*, which Pixar had declined to do. "When you see what that company did putting out *Cinderella II*, you shudder at what would have happened," Jobs said.

Eisner was able to force Roy Disney off the board in November 2003, but that didn't end the turmoil. Disney released a scathing open letter. "The company has lost its focus, its creative energy, and its heritage," he wrote. His litany of Eisner's alleged failings included not building a constructive relationship with Pixar. By this point Jobs had decided that he no longer wanted to work with Eisner. So in January 2004 he publicly announced that he was cutting off negotiations with Disney.

Jobs was usually disciplined in not making public the strong opinions that he shared with friends around his Palo Alto kitchen table. But this time he did not hold back. In a conference call with reporters, he said that while Pixar was producing hits, Disney animation was making "embarrassing duds." He scoffed at Eisner's notion that Disney made any creative contribution to the Pixar films: "The truth is there has been little creative collaboration with Disney for years. You can compare the creative quality of our films with the creative quality of Disney's last three films and judge each company's creative ability yourselves." In addition to building a better creative team, Jobs had pulled off the remarkable feat of building a brand that was now as big a draw for moviegoers as Disney's. "We think the Pixar brand is now the most powerful and trusted brand in animation." When Jobs called to give him a heads-up, Roy Disney replied, "When the wicked witch is dead, we'll be together again."

John Lasseter was aghast at the prospect of breaking up with Disney. "I was worried about my children, what they would do with the characters we'd created," he recalled. "It was like a dagger to my heart." When he told his top staff in the Pixar conference room, he started crying, and he did so again when he addressed the eight hundred or so Pixar employees gathered in the studio's atrium. "It's like you have these dear children and you have to give them up to be adopted by convicted child molesters." Jobs came to the atrium stage next and tried to calm things down. He explained why it might be necessary to break with Disney, and he assured them that Pixar as an institution had to keep looking forward to be successful. "He has the absolute ability to make you believe," said Oren Jacob, a longtime technologist at the studio. "Suddenly, we all had the confidence that, whatever happened, Pixar would flourish."

Bob Iger, Disney's chief operating officer, had to step in and do damage control. He was as sensible and solid as those around him were volatile. His background was in television; he had been president of the ABC Network, which was acquired in 1996 by Disney. His reputation was as a corporate suit, and he excelled at deft management, but he also had a sharp eye for talent, a good-humored ability to understand people, and a quiet flair that he was secure enough to keep muted. Unlike Eisner and Jobs, he had a disciplined calm, which helped him deal with large egos. "Steve did some grandstanding by announcing that he was ending talks with us," Iger later recalled. "We went into crisis mode, and I developed some talking points to settle things down."

Eisner had presided over ten great years at Disney, when Frank Wells served as his president. Wells freed Eisner from many management duties so he could make his suggestions, usually valuable and often brilliant, on ways to improve each movie project, theme park ride, television pilot, and countless other products. But after Wells was killed in a helicopter crash in 1994, Eisner never found the right manager. Katzenberg had demanded Wells's job, which is why Eisner ousted him. Michael Ovitz became president in 1995; it was not a pretty sight, and he was gone in less than two years. Jobs later offered his assessment:

> For his first ten years as CEO, Eisner did a really good job. For the last ten years, he really did a bad job. And the change came when Frank Wells died. Eisner is a really good creative guy. He gives really good notes. So when Frank was running operations, Eisner could be like a bumblebee going from project to project trying to make them better. But when Eisner had to run things, he was a terrible manager. Nobody liked working for him. They felt they had no authority. He had this strategic planning group that was like the Gestapo, in that you couldn't spend any money, not even a dime, without them approving it. Even though I broke with him, I had to respect his achievements in the first ten years. And there was a part of him I actually liked. He's a fun guy to be around at times—smart, witty. But he had a dark side to him. His ego got the better of him. Eisner was reasonable and fair to me at first, but eventually, over the course of dealing with him for a decade, I came to see a dark side to him.

Eisner's biggest problem in 2004 was that he did not fully fathom how messed up his animation division was. Its two most recent movies, *Treasure Planet* and *Brother Bear*, did no honor to the Disney legacy, or to its balance sheets. Hit animation movies were the lifeblood of the company; they spawned theme park rides, toys, and television shows. *Toy Story* had led to a movie sequel, a *Disney on Ice* show, a *Toy Story Musical* performed on Disney cruise ships, a direct-to-video film featuring Buzz Lightyear, a computer storybook, two video games, a dozen action toys that sold twenty-five million units, a clothing line, and nine different attractions at Disney theme parks. This was not the case for *Treasure Planet.*

"Michael didn't understand that Disney's problems in animation were as acute as they were," Iger later explained. "That manifested itself in the way he dealt with Pixar. He never felt he needed Pixar as much as he really did." In addition, Eisner loved to negotiate and hated to compromise, which was not always the best combination when dealing with Jobs, who was the same way. "Every negotiation needs to be resolved by compromises," Iger said. "Neither one of them is a master of compromise."

The impasse was ended on a Saturday night in March 2005, when Iger got a phone call from former senator George Mitchell and other Disney board members. They told him that, starting in a few months, he would replace Eisner as Disney's CEO. When Iger got up the next morning, he called his daughters and then Steve Jobs and John Lasseter. He said, very simply and clearly, that he valued Pixar and wanted to make a deal. Jobs was thrilled. He liked Iger and even marveled at a small connection they had: his former girlfriend Jennifer Egan and Iger's wife, Willow Bay, had been roommates at Penn.

That summer, before Iger officially took over, he and Jobs got to have a trial run at making a deal. Apple was coming out with an iPod that would play video as well as music. It needed television shows to sell, and Jobs did not want to be too public in negotiating for them because, as usual, he wanted the product to be secret until he unveiled it onstage. Iger, who had multiple iPods and used them throughout the day, from his 5 a.m. workouts to late at night, had already been envisioning what it could do for television shows. So he immediately offered ABC's most popular shows, *Desperate Housewives* and *Lost*. "We negotiated that deal in a week, and it was complicated," Iger said. "It was important because Steve got to see how I worked, and because it showed everyone that Disney could in fact work with Steve."

For the announcement of the video iPod, Jobs rented a theater in San Jose, and he invited Iger to be his surprise guest onstage. "I had never been to one of his announcements, so I had no idea what a big deal it was," Iger recalled. "It was a real breakthrough for our relationship. He saw I was pro-technology and willing to take risks." Jobs did his usual virtuoso performance, running through all the features of the new iPod, how it was "one of the best things we've ever done," and how the iTunes Store would now be selling music videos and short films. Then, as was his habit, he ended with "And yes, there is one more thing:" The iPod would be selling TV shows. There was huge applause. He mentioned that the two most popular shows were on ABC. "And who owns ABC? Disney! I know these guys," he exulted.

When Iger then came onstage, he looked as relaxed and as comfortable as Jobs. "One of the things that Steve and I are incredibly excited about is the intersection between great content and great technology," he said. "It's great to be here to announce an extension of our relation with Apple," he added. Then, after the proper pause, he said, "Not with Pixar, but with Apple."

But it was clear from their warm embrace that a new Pixar-Disney deal was once again possible. "It signaled my way of operating, which was 'Make love not war,' " Iger recalled. "We had been at war with Roy Disney, Comcast, Apple, and Pixar. I wanted to fix all that, Pixar most of all."

Iger had just come back from opening the new Disneyland in Hong Kong, with Eisner at his side in his last big act as CEO. The ceremonies included the usual Disney parade down Main Street. Iger realized that the only characters in the parade that had been created in the past decade were Pixar's. "A lightbulb went off," he recalled. "I'm standing next to Michael, but I kept it completely to myself, because it was such an indictment of his stewardship of animation during that period. After ten years of *The Lion King, Beauty and the Beast,* and *Aladdin*, there were then ten years of nothing."

Iger went back to Burbank and had some financial analysis done. He discovered that they had actually lost money on animation in the past decade and had produced little that helped ancillary products. At his first meeting as the new CEO, he presented the analysis to the board, whose members expressed some anger that they had never been told this. "As animation goes, so goes our company," he told the board. "A hit animated film is a big wave, and the ripples go down to every part of our business—from characters in a parade, to music, to parks, to video games, TV, Internet, consumer products. If I don't have wave makers, the company is not going to succeed." He presented them with some choices. They could stick with the current animation management, which he didn't think would work. They could get rid of management and find someone else, but he said he didn't know who that would be. Or they could buy Pixar. "The problem is, I don't know if it's for sale, and if it is, it's going to be a huge amount of money," he said. The board authorized him to explore a deal.

Iger went about it in an unusual way. When he first talked to Jobs, he admitted the revelation that had occurred to him in Hong Kong and how it convinced him that Disney badly needed Pixar. "That's why I just loved Bob Iger," recalled Jobs. "He just blurted it out. Now that's the dumbest thing you can do as you enter a negotiation, at least according to the traditional rule book. He just put his cards out on the table and said, 'We're screwed.' I immediately liked the guy, because that's how I worked too. Let's just immediately put all the cards on the table and see where they fall." (In fact that was not usually Jobs's mode of operation. He often began negotiations by proclaiming that the other company's products or services sucked.)

Jobs and Iger took a lot of walks—around the Apple campus, in Palo Alto, at the Allen and Co. retreat in Sun Valley. At first they came up with a plan for a new distribution deal: Pixar would get back all the rights to the movies and characters it had already produced in return for Disney's getting an equity stake in Pixar, and it would pay Disney a simple fee to distribute its future movies. But Iger worried that such a deal would simply set Pixar up as a competitor to Disney, which would be bad even if Disney had an equity stake in it. So he began to hint that maybe they should actually do something bigger. "I want you to know that I am really thinking out of the box on this," he said. Jobs seemed to encourage the advances. "It wasn't too long before it was clear to both of us that this discussion might lead to an acquisition discussion," Jobs recalled.

But first Jobs needed the blessing of John Lasseter and Ed Catmull, so he asked them to come over to his house. He got right to the point. "We need to get to know Bob Iger," he told them. "We may want to throw in with him and to help him remake Disney. He's a great guy." They were skeptical at first. "He could tell we were pretty shocked," Lasseter recalled.

"If you guys don't want to do it, that's fine, but I want you to get to know Iger before you decide," Jobs continued. "I was feeling the same as you, but I've really grown to like the guy." He explained how easy it had been to make the deal to put ABC shows on the iPod, and added, "It's night and day different from Eisner's Disney. He's straightforward, and there's no drama with him." Lasseter remembers that he and Catmull just sat there with their mouths slightly open.

Iger went to work. He flew from Los Angeles to Lasseter's house for dinner, and stayed up well past midnight talking. He also took Catmull out to dinner, and then he visited Pixar Studios, alone, with no entourage and without Jobs. "I went out and met all the directors one on one, and they each pitched me their movie," he said. Lasseter was proud of how much his team impressed Iger, which of course made him warm up to Iger. "I never had more pride in Pixar than that day," he said. "All the teams and pitches were amazing, and Bob was blown away."

Indeed after seeing what was coming up over the next few years—*Cars, Ratatouille, WALL-E*—Iger told his chief financial officer at Disney, "Oh my God, they've got great stuff. We've got to get this deal done. It's the future of the company." He admitted that he had no faith in the movies that Disney animation had in the works.

The deal they proposed was that Disney would purchase Pixar for $7.4 billion in stock. Jobs would thus become Disney's largest shareholder, with approximately 7% of the company's stock compared to 1.7% owned by Eisner and 1% by Roy Disney. Disney Animation would be put under Pixar, with Lasseter and Catmull running the combined unit. Pixar would retain its independent identity, its studio and headquarters would remain in Emeryville, and it would even keep its own email addresses.

Iger asked Jobs to bring Lasseter and Catmull to a secret meeting of the Disney board in Century City, Los Angeles, on a Sunday morning. The goal was to make them feel comfortable with what would be a radical and expensive deal. As they prepared to take the elevator from the parking garage, Lasseter said to Jobs, "If I start getting too excited or go on too long, just touch my leg." Jobs ended up having to do it once, but otherwise Lasseter made the perfect sales pitch. "I talked about how we make films, what our philosophies are, the honesty we have with each other, and how we nurture the creative talent," he recalled. The board asked a lot of questions, and Jobs let Lasseter answer most. But Jobs did talk about how exciting it was to connect art with technology. "That's what our culture is all about, just like at Apple," he said.

Before the Disney board got a chance to approve the merger, however, Michael Eisner arose from the departed to try to derail it. He called Iger and said it was far too expensive. "You can fix animation yourself," Eisner told him. "How?" asked Iger. "I know you can," said Eisner. Iger got a bit annoyed. "Michael, how come you say I can fix it, when you couldn't fix it yourself?" he asked.

Eisner said he wanted to come to a board meeting, even though he was no longer a member or an officer, and speak against the acquisition. Iger resisted, but Eisner called Warren Buffett, a big shareholder, and George Mitchell, who was the lead director. The former senator convinced Iger to let Eisner have his say. "I told the board that they didn't need to buy Pixar because they already owned 85% of the movies Pixar had already made," Eisner recounted. He was referring to the fact that for the movies already made, Disney was getting that percentage of the gross, plus it had the rights to make all the sequels and exploit the characters. "I made a presentation that said, here's the 15% of Pixar that Disney does not already own. So that's what you're getting. The rest is a bet on future Pixar films." Eisner admitted that Pixar had been enjoying a good run, but he said it could not continue. "I showed the history of producers and directors who had X number of hits in a row and then failed. It happened to Spielberg, Walt Disney, all of them." To make the deal worth it, he calculated, each new Pixar movie would have to gross $1.3 billion. "It drove Steve crazy that I knew that," Eisner later said.

After he left the room, Iger refuted his argument point by point. "Let me tell you what was wrong with that presentation," he began. When the board had finished hearing them both, it approved the deal Iger proposed.

Iger flew up to Emeryville to meet Jobs and jointly announce the deal to the Pixar workers. But before they did, Jobs sat down alone with Lasseter and Catmull. "If either of you have doubts," he said, "I will just tell them no thanks and blow off this deal." He wasn't totally sincere. It would have been almost impossible to do so at that point. But it was a welcome gesture. "I'm good," said Lasseter. "Let's do it." Catmull agreed. They all hugged, and Jobs wept.

Everyone then gathered in the atrium. "Disney is buying Pixar," Jobs announced. There were a few tears, but as he explained the deal, the staffers began to realize that in some ways it was a reverse acquisition. Catmull would be the head of Disney animation, Lasseter its chief creative officer. By the end they were cheering. Iger had been standing on the side, and Jobs invited him to center stage. As he talked about the special culture of Pixar and how badly Disney needed to nurture it and learn from it, the crowd broke into applause.

"My goal has always been not only to make great products, but to build great companies," Jobs later said. "Walt Disney did that. And the way we did the merger, we kept Pixar as a great company and helped Disney remain one as well."

CHAPTER THIRTY-FOUR

TWENTY-FIRST-CENTURY MACS

Setting Apple Apart

With the iBook, 1999

Clams, Ice Cubes, and Sunflowers

Ever since the introduction of the iMac in 1998, Jobs and Jony Ive had made beguiling design a signature of Apple's computers. There was a consumer laptop that looked like a tangerine clam, and a professional desktop computer that suggested a Zen ice cube. Like bell-bottoms that turn up in the back of a closet, some of these models looked better at the time than they do in retrospect, and they show a love of design that was, on occasion, a bit too exuberant. But they set Apple apart and provided the publicity bursts it needed to survive in a Windows world.

The Power Mac G4 Cube, released in 2000, was so alluring that one ended up on display in New York's Museum of Modern Art. An eight-inch perfect cube the size of a Kleenex box, it was the pure expression of Jobs's aesthetic. The sophistication came from minimalism. No buttons marred the surface. There was no CD tray, just a subtle slot. And as with the original Macintosh, there was no fan. Pure Zen. "When you see something that's so thoughtful on the outside you say, 'Oh, wow, it must be really thoughtful on the inside,'" he told *Newsweek.* "We make progress by eliminating things, by removing the superfluous."

The G4 Cube was almost ostentatious in its lack of ostentation, and it was powerful. But it was not a success. It had been designed as a high-end desktop, but Jobs wanted to turn it, as he did almost every product, into something that could be mass-marketed to consumers. The Cube ended up not serving either market well. Workaday professionals weren't seeking a jewel-like sculpture for their desks, and mass-market consumers were not eager to spend twice what they'd pay for a plain vanilla desktop. Jobs predicted that Apple would sell 200,000 Cubes per quarter. In its first quarter it sold half that. The next quarter it sold fewer than thirty thousand units. Jobs later admitted that he had overdesigned and overpriced the Cube, just as he had the NeXT computer. But gradually he was learning his lesson. In building devices like the iPod, he would control costs and make the trade-offs necessary to get them launched on time and on budget.

Partly because of the poor sales of the Cube, Apple produced disappointing revenue numbers in September 2000. That was just when the tech bubble was deflating and Apple's education market was declining. The company's stock price, which had been above $60, fell 50% in one day, and by early December it was below $15.

None of this deterred Jobs from continuing to push for distinctive, even distracting, new design. When flat-screen displays became commercially viable, he decided it was time to replace the iMac, the translucent consumer desktop computer that looked as if it were from a *Jetsons* cartoon. Ive came up with a model that was somewhat conventional, with the guts of the computer attached to the back of the flat screen. Jobs didn't like it. As he often did, both at Pixar and at

Apple, he slammed on the brakes to rethink things. There was something about the design that lacked purity, he felt. "Why have this flat display if you're going to glom all this stuff on its back?" he asked Ive. "We should let each element be true to itself."

Jobs went home early that day to mull over the problem, then called Ive to come by. They wandered into the garden, which Jobs's wife had planted with a profusion of sunflowers. "Every year I do something wild with the garden, and that time it involved masses of sunflowers, with a sunflower house for the kids," she recalled. "Jony and Steve were riffing on their design problem, then Jony asked, 'What if the screen was separated from the base like a sunflower?' He got excited and started sketching." Ive liked his designs to suggest a narrative, and he realized that a sunflower shape would convey that the flat screen was so fluid and responsive that it could reach for the sun.

In Ive's new design, the Mac's screen was attached to a movable chrome neck, so that it looked not only like a sunflower but also like a cheeky Luxo lamp. Indeed it evoked the playful personality of Luxo Jr. in the first short film that John Lasseter had made at Pixar. Apple took out many patents for the design, most crediting Ive, but on one of them, for "a computer system having a movable assembly attached to a flat panel display," Jobs listed himself as the primary inventor.

In hindsight, some of Apple's Macintosh designs may seem a bit too cute. But other computer makers were at the other extreme. It was an industry that you'd expect to be innovative, but instead it was dominated by cheaply designed generic boxes. After a few ill-conceived stabs at painting on blue colors and trying new shapes, companies such as Dell, Compaq, and HP commoditized computers by outsourcing manufacturing and competing on price. With its spunky designs and its pathbreaking applications like iTunes and iMovie, Apple was about the only place innovating.

Intel Inside

Apple's innovations were more than skin-deep. Since 1994 it had been using a microprocessor, called the PowerPC, that was made by a partnership of IBM and Motorola. For a few years it was faster than Intel's chips, an advantage that Apple touted in humorous commercials. By the time of Jobs's return, however, Motorola had fallen behind in producing new versions of the chip. This provoked a fight between Jobs and Motorola's CEO Chris Galvin. When Jobs decided to stop licensing the Macintosh operating system to clone makers, right after his return to Apple in 1997, he suggested to Galvin that he might consider making an exception for Motorola's clone, the StarMax Mac, but only if Motorola sped up development of new PowerPC chips for laptops. The call got heated. Jobs offered his opinion that Motorola chips sucked. Galvin, who also had a temper, pushed back. Jobs hung up on him. The Motorola StarMax was canceled, and Jobs secretly began planning to move Apple off the Motorola-IBM PowerPC chip and to adopt, instead, Intel's. This would not be a simple task. It was akin to writing a new operating system.

Jobs did not cede any real power to his board, but he did use its meetings to kick around ideas and think through strategies in confidence, while he stood at a whiteboard and led freewheeling discussions. For eighteen months the directors discussed whether to move to an Intel architecture. "We debated it, we asked a lot of questions, and finally we all decided it needed to be done," board member Art Levinson recalled.

Paul Otellini, who was then president and later became CEO of Intel, began huddling with Jobs. They had gotten to know each other when Jobs was struggling to keep NeXT alive and, as Otellini later put it, "his arrogance had been temporarily tempered." Otellini has a calm and wry take on people, and he was amused rather than put off when he discovered, upon dealing with Jobs at Apple in the early 2000s, "that his juices were going again, and he wasn't nearly as humble anymore." Intel had deals with other computer makers, and Jobs wanted a better price than they had. "We had to find creative ways to bridge the numbers," said Otellini. Most of the negotiating was done, as Jobs preferred, on long walks, sometimes on the trails up to the radio telescope known as the Dish above the Stanford campus. Jobs would start the walk by telling a story and explaining how he saw the history of computers evolving. By the end he would be haggling over price.

"Intel had a reputation for being a tough partner, coming out of the days when it was run by Andy Grove and Craig Barrett," Otellini said. "I wanted to show that Intel was a company you could work with." So a crack team from Intel worked with Apple, and they were able to beat the conversion deadline by six months. Jobs invited Otellini to Apple's Top 100 management retreat, where he donned one of the famous Intel lab coats that looked like a bunny suit and gave Jobs a big hug. At the public announcement in 2005, the usually reserved Otellini repeated the act. "Apple and Intel, together at last," flashed on the big screen.

Bill Gates was amazed. Designing crazy-colored cases did not impress him, but a secret program to switch the CPU in a computer, completed seamlessly and on time, was a feat he truly admired. "If you'd said, 'Okay, we're going to change our microprocessor chip, and we're not going to lose a beat,' that sounds impossible," he told me years later, when I asked him about Jobs's accomplishments. "They basically did that."

Options

Among Jobs's quirks was his attitude toward money. When he returned to Apple in 1997, he portrayed himself as a person working for $1 a year, doing it for the benefit of the company rather than himself. Nevertheless he embraced the idea of option megagrants—granting huge bundles of options to buy Apple stock at a preset price—that were not subject to the usual good compensation practices of board committee reviews and performance criteria.

When he dropped the "interim" in his title and officially became CEO, he was offered (in addition to the airplane) a megagrant by Ed Woolard and the board at the beginning of 2000; defying the image he cultivated of not being interested in money, he had stunned Woolard by asking for even more options than the board had proposed. But soon after he got them, it turned out that it was for naught. Apple stock cratered in September 2000—due to disappointing sales of the Cube plus the bursting of the Internet bubble—which made the options worthless.

Making matters worse was a June 2001 cover story in *Fortune* about overcompensated CEOs, "The Great CEO Pay Heist." A mug of Jobs, smiling smugly, filled the cover. Even though his options were underwater at the time, the technical method of valuing them when granted (known as a Black-Scholes valuation) set their worth at $872 million. *Fortune* proclaimed it "by far" the largest compensation package ever granted a CEO. It was the worst of all worlds: Jobs had almost no money that he could put in his pocket for his four years of hard and successful turnaround work at Apple, yet he had become the poster child of greedy CEOs, making him look hypocritical and undermining his self-image. He wrote a scathing letter to the editor, declaring that his options actually "are worth zero" and offering to sell them to *Fortune* for half of the supposed $872 million the magazine had reported.

In the meantime Jobs wanted the board to give him another big grant of options, since his old ones seemed worthless. He insisted, both to the board and probably to himself, that it was more about getting proper recognition than getting rich. "It wasn't so much about the money," he later said in a deposition in an SEC lawsuit over the options. "Everybody likes to be recognized by his peers. . . . I felt that the board wasn't really doing the same with me." He felt that the board should have come to him offering a new grant, without his having to suggest it. "I thought I was doing a pretty good job. It would have made me feel better at the time."

His handpicked board in fact doted on him. So they decided to give him another huge grant in August 2001, when the stock price was just under $18. The problem was that he worried about his image, especially after the *Fortune* article. He did not want to accept the new grant unless the board canceled his old options at the same time. But to do so would have adverse accounting implications, because it would be effectively repricing the old options. That would require taking a charge against current earnings. The only way to avoid this "variable accounting" problem was to cancel his old options at least six months after his new options were granted. In addition, Jobs started haggling with the board over how quickly the new options would vest.

It was not until mid-December 2001 that Jobs finally agreed to take the new options and, braving the optics, wait six months before his old ones were canceled. But by then the stock price (adjusting for a split) had gone up $3, to about $21. If the strike price of the new options was set at that new level, each would have thus been $3 less valuable. So Apple's legal counsel, Nancy Heinen, looked over the recent stock prices and helped to choose an October date, when the stock was $18.30. She also approved a set of minutes that purported to show that the board had approved the grant on that date. The backdating was potentially worth $20 million to Jobs.

Once again Jobs would end up suffering bad publicity without making a penny. Apple's stock price kept dropping, and by March 2003 even the new options were so low that Jobs traded in all of them for an outright grant of $75 million worth of shares, which amounted to about $8.3 million for each year he had worked since coming back in 1997 through the end of the vesting in 2006.

None of this would have mattered much if the *Wall Street Journal* had not run a powerful series in 2006 about backdated stock options. Apple wasn't mentioned, but its board appointed a committee of three members—Al Gore, Eric Schmidt of Google, and Jerry York, formerly of IBM and Chrysler—to investigate its own practices. "We decided at the outset that if Steve was at fault we would let the chips fall where they may," Gore recalled. The committee uncovered some irregularities with Jobs's grants and those of other top officers, and it immediately turned the findings over to the SEC. Jobs was aware of the backdating, the report said, but he ended up not benefiting financially. (A board committee at Disney also found that similar backdating had occurred at Pixar when Jobs was in charge.)

The laws governing such backdating practices were murky, especially since no one at Apple ended up benefiting from the dubiously dated grants. The SEC took eight months to do its own investigation, and in April 2007 it announced that it would not bring action against Apple "based in part on its swift, extensive, and extraordinary cooperation in the Commission's investigation [and its] prompt self-reporting." Although the SEC found that Jobs had been aware of the backdating, it cleared him of any misconduct because he "was unaware of the accounting implications."

The SEC did file complaints against Apple's former chief financial officer Fred Anderson, who was on the board, and general counsel Nancy Heinen. Anderson, a retired Air Force captain with a square jaw and deep integrity, had been a wise and calming influence at Apple, where he was known for his ability to control Jobs's tantrums. He was cited by the SEC only for "negligence" regarding the paperwork for one set of the grants (not the ones that went to Jobs), and the SEC allowed him to continue to serve on corporate boards. Nevertheless he ended up resigning from the Apple board.

Anderson thought he had been made a scapegoat. When he settled with the SEC, his lawyer issued a statement that cast some of the blame on Jobs. It said that Anderson had "cautioned Mr. Jobs that the executive team grant would have to be priced on the date of the actual board agreement or there could be an accounting charge," and that Jobs replied "that the board had given its prior approval."

Heinen, who initially fought the charges against her, ended up settling and paying a $2.2 million fine, without admitting or denying any wrongdoing. Likewise the company itself settled a shareholders' lawsuit by agreeing to pay $14 million in damages.

"Rarely have so many avoidable problems been created by one man's obsession with his own image," Joe Nocera wrote in the *New York Times*. "Then again, this is Steve Jobs we're talking about." Contemptuous of rules and regulations, he created a climate that made it hard for someone like Heinen to buck his wishes. At times, great creativity occurred. But people around him could pay a price. On compensation issues in particular, the difficulty of defying his whims drove some good people to make some bad mistakes.

The compensation issue in some ways echoed Jobs's parking quirk. He refused such trappings as having a "Reserved for CEO" spot, but he assumed for himself the right to park in the handicapped spaces. He wanted to be seen (both by himself and by others) as someone willing to work for $1 a year, but he also wanted to have huge stock grants bestowed upon him. Jangling inside him were the contradictions of a counterculture rebel turned business entrepreneur, someone who wanted to believe that he had turned on and tuned in without having sold out and cashed in.

[redacted]

Jobs surprised everyone by making an appearance. He ambled in and was able to stay for most of the meeting. By early June he was holding daily meetings at his house, and by the end of the month he was back at work.

Would he now, after facing death, be more mellow? His colleagues quickly got an answer. On his first day back, he startled his top team by throwing a series of tantrums. He ripped apart people he had not seen for six months, tore up some marketing plans, and chewed out a couple of people whose work he found shoddy. But what was truly telling was the pronouncement he made to a couple of friends late that afternoon. "I had the greatest time being back today," he said. "I can't believe how creative I'm feeling, and how the whole team is." Tim Cook took it in stride. "I've never seen Steve hold back from expressing his view or passion," he later said. "But that was good."

Friends noted that Jobs had retained his feistiness. During his recuperation he signed up for Comcast's high-definition cable service, and one day he called Brian Roberts, who ran the company. "I thought he was calling to say something nice about it," Roberts recalled. "Instead, he told me 'It sucks.'" But Andy Hertzfeld noticed that, beneath the gruffness, Jobs had become more honest. "Before, if you asked Steve for a favor, he might do the exact opposite," Hertzfeld said. "That was the perversity in his nature. Now he actually tries to be helpful."

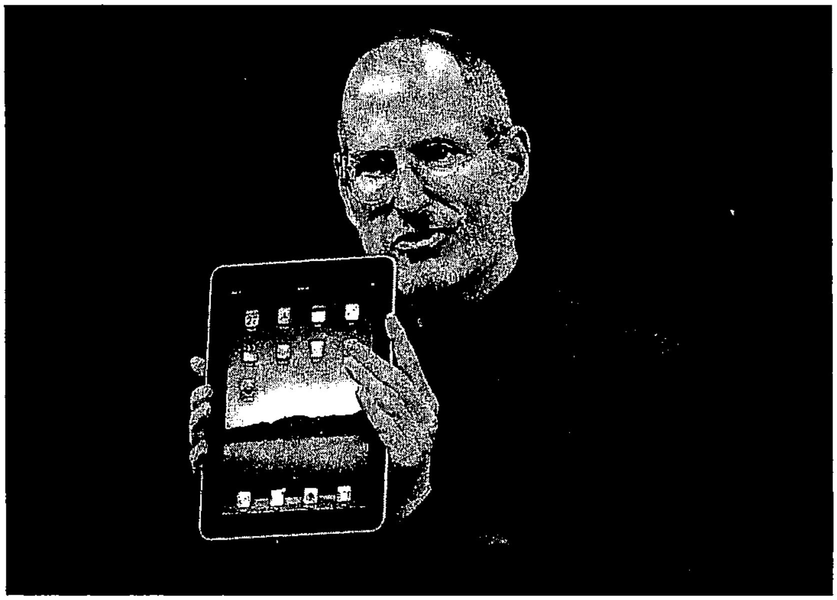
His public return came on September 9, when he took the stage at the company's regular fall music event. He got a standing ovation that lasted almost a minute, then he opened on an unusually personal note by mentioning that he was the recipient of a liver donation. "I wouldn't be here without such generosity," he said, "so I hope all of us can be as generous and elect to become organ donors." After a moment of exultation—"I'm vertical, I'm back at Apple, and I'm loving every day of it"—he unveiled the new line of iPod Nanos, with video cameras, in nine different colors of anodized aluminum.

By the beginning of 2010 he had recovered most of his strength, and he threw himself back into work for what would be one of his, and Apple's, most productive years. He had hit two consecutive home runs since launching Apple's digital hub strategy: the iPod and the iPhone. Now he was going to swing for another.

CHAPTER THIRTY-EIGHT

THE iPAD

Into the Post-PC Era



You Say You Want a Revolution

Back in 2002, Jobs had been annoyed by the Microsoft engineer who kept proselytizing about the tablet computer software he had developed, which allowed users to input information on the screen with a stylus or pen. A few manufacturers released tablet PCs that year using the software, but none made a dent in the universe. Jobs had been eager to show how it should be done right—no stylus!—but when he saw the multi-touch technology that Apple was developing, he had decided to use it first to make an iPhone.

In the meantime, the tablet idea was percolating within the Macintosh hardware group. "We have no plans to make a tablet," Jobs declared in an interview with Walt Mossberg in May 2003. "It turns out people want keyboards. Tablets appeal to rich guys with plenty of other PCs and devices already." Like his statement about having a "hormone imbalance," that was misleading; at most of his annual Top 100 retreats, the tablet was among the future projects discussed. "We showed the idea off at many of these retreats, because Steve never lost his desire to do a tablet," Phil Schiller recalled.

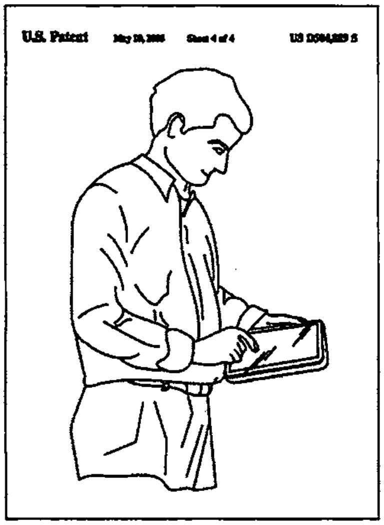
The tablet project got a boost in 2007 when Jobs was considering ideas for a low-cost netbook computer. At an executive team brainstorming session one Monday, Ive asked why it needed a keyboard hinged to the screen; that was expensive and bulky. Put the keyboard on the screen using a multi-touch interface, he suggested. Jobs agreed. So the resources were directed to revving up the tablet project rather than designing a netbook.

The process began with Jobs and Ive figuring out the right screen size. They had twenty models made—all rounded rectangles, of course—in slightly varying sizes and aspect ratios. Ive laid them out on a table in the design studio, and in the afternoon they would lift the velvet cloth hiding them and play with them. "That's how we nailed what the screen size was," Ive said.

As usual Jobs pushed for the purest possible simplicity. That required determining what was the core essence of the device. The answer: the display screen. So the guiding principle was that everything they did had to defer to the screen. "How do we get out of the way so there aren't a ton of features and buttons that distract from the display?" Ive asked. At every step, Jobs pushed to remove and simplify.

At one point Jobs looked at the model and was slightly dissatisfied. It didn't feel casual and friendly enough, so that you would naturally scoop it up and whisk it away. Ive put his finger, so to speak, on the problem: They needed to signal that you could grab it with one hand, on impulse. The bottom of the edge needed to be slightly rounded, so that you'd feel comfortable just scooping it up rather than lifting it carefully. That meant engineering had to design the necessary connection ports and buttons in a simple lip that was thin enough to wash away gently underneath.

If you had been paying attention to patent filings, you would have noticed the one numbered D504889 that Apple applied for in March 2004 and was issued fourteen months later. Among the inventors listed were Jobs and Ive. The application carried sketches of a rectangular electronic tablet with rounded edges, which looked just the way the iPad turned out, including one of a man holding it casually in his left hand while using his right index finger to touch the screen.



Since the Macintosh computers were now using Intel chips, Jobs initially planned to use in the iPad the low-voltage Atom chip that Intel was developing. Paul Otellini, Intel's CEO, was pushing hard to work together on a design, and Jobs's inclination was to trust him. His company was making the fastest processors in the world. But Intel was used to making processors for machines that plugged into a wall, not ones that had to preserve battery life. So Tony Fadell argued strongly for something based on the ARM architecture, which was simpler and used less power. Apple had been an early partner with ARM, and chips using its architecture were in the original iPhone. Fadell gathered support from other engineers and proved that it was possible to confront Jobs and turn him around. "Wrong, wrong, wrong!" Fadell shouted at one meeting when Jobs insisted it was best to trust Intel to make a good mobile chip. Fadell even put his Apple badge on the table, threatening to resign.

Eventually Jobs relented. "I hear you," he said. "I'm not going to go against my best guys." In fact he went to the other extreme. Apple licensed the ARM architecture, but it also bought a 150-person microprocessor design firm in Palo Alto, called P.A. Semi, and had it create a custom system-on-a-chip, called the A4, which was based on the ARM architecture and manufactured in South Korea by Samsung. As Jobs recalled:

> At the high-performance end, Intel is the best. They build the fastest chip, if you don't care about power and cost. But they build just the processor on one chip, so it takes a lot of other parts. Our A4 has the processor and the graphics, mobile operating system, and memory control all in the chip. We tried to help Intel, but they don't listen much. We've been telling them for years that their graphics suck. Every quarter we schedule a meeting with me and our top three guys and Paul Otellini. At the beginning, we were doing wonderful things together. They wanted this big joint project to do chips for future iPhones. There were two reasons we didn't go with them. One was that they are just really slow. They're like a steamship, not very flexible. We're used to going pretty fast. Second is that we just didn't want to teach them everything, which they could go and sell to our competitors.

According to Otellini, it would have made sense for the iPad to use Intel chips. The problem, he said, was that Apple and Intel couldn't agree on price. Also, they disagreed on who would control the design. It was another example of Jobs's desire, indeed compulsion, to control every aspect of a product, from the silicon to the flesh.

The Launch, January 2010

The usual excitement that Jobs was able to gin up for a product launch paled in comparison to the frenzy that built for the iPad unveiling on January 27, 2010, in San Francisco. The *Economist* put him on its cover robed, haloed, and holding what was dubbed "the Jesus Tablet." The *Wall Street Journal* struck a similarly exalted note: "The last time there was this much excitement about a tablet, it had some commandments written on it."

As if to underscore the historic nature of the launch, Jobs invited back many of the old-timers from his early Apple days. More poignantly, James Eason, who had performed his liver transplant the year before, and Jeffrey Norton, who had operated on his pancreas in 2004, were in the audience, sitting with his wife, his son, and Mona Simpson.

Jobs did his usual masterly job of putting a new device into context, as he had done for the iPhone three years earlier. This time he put up a screen that showed an iPhone and a laptop with a question mark in between. "The question is, is there room for something in the middle?" he asked. That "something" would have to be good at web browsing, email, photos, video, music, games, and ebooks. He drove a stake through the heart of the netbook concept. "Netbooks aren't better at anything!" he said. The invited guests and employees cheered. "But we have something that is. We call it the iPad."

To underscore the casual nature of the iPad, Jobs ambled over to a comfortable leather chair and side table (actually, given his taste, it was a Le Corbusier chair and an Eero Saarinen table) and scooped one up. "It's so much more intimate than a laptop," he enthused. He proceeded to surf to the *New York Times* website, send an email to Scott Forstall and Phil Schiller ("Wow, we really are announcing the iPad"), flip through a photo album, use a calendar, zoom in on the Eiffel Tower on Google Maps, watch some video clips (*Star Trek* and Pixar's *Up*), show off the iBook shelf, and play a song (Bob Dylan's "Like a Rolling Stone," which he had played at the iPhone launch). "Isn't that awesome?" he asked.

With his final slide, Jobs emphasized one of the themes of his life, which was embodied by the iPad: a sign showing the corner of Technology Street and Liberal Arts Street. "The reason Apple can create products like the iPad is that we've always tried to be at the intersection of technology and liberal arts," he concluded. The iPad was the digital reincarnation of the *Whole Earth Catalog*, the place where creativity met tools for living.

For once, the initial reaction was not a Hallelujah Chorus. The iPad was not yet available (it would go on sale in April), and some who watched Jobs's demo were not quite sure what it was. An iPhone on steroids? "I haven't been this let down since Snooki hooked up with The Situation," wrote *Newsweek*'s Daniel Lyons (who moonlighted as "The Fake Steve Jobs" in an online parody). Gizmodo ran a contributor's piece headlined "Eight Things That Suck about the iPad" (no multitasking, no cameras, no Flash . . .). Even the name came in for ridicule in the blogosphere, with snarky comments about feminine hygiene products and maxi pads. The hashtag "#iTampon" was the number-three trending topic on Twitter that day.

There was also the requisite dismissal from Bill Gates. "I still think that some mixture of voice, the pen and a real keyboard—in other words a netbook—will be the mainstream," he told Brent Schlender. "So, it's not like I sit there and feel the same way I did with the iPhone where I say, 'Oh my God, Microsoft didn't aim high enough.' It's a nice reader, but there's nothing on the iPad I look at and say, 'Oh, I wish Microsoft had done it.' " He continued to insist that the Microsoft approach of using a stylus for input would prevail. "I've been predicting a tablet with a stylus for many years," he told me. "I will eventually turn out to be right or be dead."

The night after his announcement, Jobs was annoyed and depressed. As we gathered in his kitchen for dinner, he paced around the table calling up emails and web pages on his iPhone.

> I got about eight hundred email messages in the last twenty-four hours. Most of them are complaining. There's no USB cord! There's no this, no that. Some of them are like, "Fuck you, how can you do that?" I don't usually write people back, but I replied, "Your parents would be so proud of how you turned out." And some don't like the iPad name, and on and on. I kind of got depressed today. It knocks you back a bit.

He did get one congratulatory call that day that he appreciated, from President Obama's chief of staff, Rahm Emanuel. But he noted at dinner that the president had not called him since taking office.

The public carping subsided when the iPad went on sale in April and people got their hands on it. Both *Time* and *Newsweek* put it on the cover. "The tough thing about writing about Apple products is that they come with a lot of hype wrapped around them," Lev Grossman wrote in *Time.* "The other tough thing about writing about Apple products is that sometimes the hype is true." His main reservation, a substantive one, was "that while it's a lovely device for consuming content, it doesn't do much to facilitate its creation." Computers, especially the Macintosh, had become tools that allowed people to make music, videos, websites, and blogs, which could be posted for the world to see. "The iPad shifts the emphasis from creating content to merely absorbing and manipulating it. It mutes you, turns you back into a passive consumer of other people's masterpieces." It was a criticism Jobs took to heart. He set about making sure that the next version of the iPad would emphasize ways to facilitate artistic creation by the user.

Newsweek's cover line was "What's So Great about the iPad? Everything." Daniel Lyons, who had zapped it with his "Snooki" comment at the launch, revised his opinion. "My first thought, as I watched Jobs run through his demo, was that it seemed like no big deal," he wrote. "It's a bigger version of the iPod Touch, right? Then I got a chance to use an iPad, and it hit me: I want one." Lyons, like others, realized that this was Jobs's pet project, and it embodied all that he stood for. "He has an uncanny ability to cook up gadgets that we didn't know we needed, but then suddenly can't live without," he wrote. "A closed system may be the only way to deliver the kind of techno-Zen experience that Apple has become known for."

Most of the debate over the iPad centered on the issue of whether its closed end-to-end integration was brilliant or doomed. Google was starting to play a role similar to the one Microsoft had played in the 1980s, offering a mobile platform, Android, that was open and could be used by all hardware makers. *Fortune* staged a debate on this issue in its pages. "There's no excuse to be closed," wrote Michael Copeland. But his colleague Jon Fortt rebutted, "Closed systems get a bad rap, but they work beautifully and users benefit. Probably no one in tech has proved this more convincingly than Steve Jobs. By bundling hardware, software, and services, and controlling them tightly, Apple is consistently able to get the jump on its rivals and roll out polished products." They agreed that the iPad would be the clearest test of this question since the original Macintosh. "Apple has taken its control-freak rep to a whole new level with the A4 chip that powers the thing," wrote Fortt. "Cupertino now has absolute say over the silicon, device, operating system, App Store, and payment system."

Jobs went to the Apple store in Palo Alto shortly before noon on April 5, the day the iPad went on sale. Daniel Kottke—his acid-dropping soul mate from Reed and the early days at Apple, who no longer harbored a grudge for not getting founders' stock options—made a point of being there. "It had been fifteen years, and I wanted to see him again," Kottke recounted. "I grabbed him and told him I was going to use the iPad for my song lyrics. He was in a great mood and we had a nice chat after all these years." Powell and their youngest child, Eve, watched from a corner of the store.

Wozniak, who had once been a proponent of making hardware and software as open as possible, continued to revise that opinion. As he often did, he stayed up all night with the enthusiasts waiting in line for the store to open. This time he was at San Jose's Valley Fair Mall, riding a Segway. A reporter asked him about the closed nature of Apple's ecosystem. "Apple gets you into their playpen and keeps you there, but there are some advantages to that," he replied. "I like open systems, but I'm a hacker. But most people want things that are easy to use. Steve's genius is that he knows how to make things simple, and that sometimes requires controlling everything."

The question "What's on your iPad?" replaced "What's on your iPod?" Even President Obama's staffers, who embraced the iPad as a mark of their tech hipness, played the game. Economic Advisor Larry Summers had the Bloomberg financial information app, Scrabble, and *The Federalist Papers.* Chief of Staff Rahm Emanuel had a slew of newspapers, Communications Advisor Bill Burton had *Vanity Fair* and one entire season of the television series *Lost,* and Political Director David Axelrod had Major League Baseball and NPR.

Jobs was stirred by a story, which he forwarded to me, by Michael Noer on *Forbes.com.* Noer was reading a science fiction novel on his iPad while staying at a dairy farm in a rural area north of Bogotá, Colombia, when a poor six-year-old boy who cleaned the stables came up to him. Curious, Noer handed him the device. With no instruction, and never having seen a computer before, the boy started using it intuitively. He began swiping the screen, launching apps, playing a pinball game. "Steve Jobs has designed a powerful computer that an illiterate six-year-old can use without instruction," Noer wrote. "If that isn't magical, I don't know what is."

In less than a month Apple sold one million iPads. That was twice as fast as it took the iPhone to reach that mark. By March 2011, nine months after its release, fifteen million had been sold. By some measures it became the most successful consumer product launch in history.

Advertising

Jobs was not happy with the original ads for the iPad. As usual, he threw himself into the marketing, working with James Vincent and Duncan Milner at the ad agency (now called TBWA/Media Arts Lab), with Lee Clow advising from a semiretired perch. The commercial they first produced was a gentle scene of a guy in faded jeans and sweatshirt reclining in a chair, looking at email, a photo album, the *New York Times*, books, and video on an iPad propped on his lap. There were no words, just the background beat of "There Goes My Love" by the Blue Van. "After he approved it, Steve decided he hated it," Vincent recalled. "He thought it looked like a Pottery Barn commercial." Jobs later told me:

> It had been easy to explain what the iPod was—a thousand songs in your pocket—which allowed us to move quickly to the iconic silhouette ads. But it was hard to explain what an iPad was. We didn't want to show it as a computer, and yet we didn't want to make it so soft that it looked like a cute TV. The first set of ads showed we didn't know what we were doing. They had a cashmere and Hush Puppies feel to them.

James Vincent had not taken a break in months. So when the iPad finally went on sale and the ads started airing, he drove with his family to the Coachella Music Festival in Palm Springs, which featured some of his favorite bands, including Muse, Faith No More, and Devo. Soon after he arrived, Jobs called. "Your commercials suck," he said. "The iPad is revolutionizing the world, and we need something big. You've given me small shit."

"Well, what do you want?" Vincent shot back. "You've not been able to tell me what you want."

"I don't know," Jobs said. "You have to bring me something new. Nothing you've shown me is even close."

Vincent argued back and suddenly Jobs went ballistic. "He just started screaming at me," Vincent recalled. Vincent could be volatile himself, and the volleys escalated.

When Vincent shouted, "You've got to tell me what you want," Jobs shot back, "You've got to show me some stuff, and I'll know it when I see it."

"Oh, great, let me write that on my brief for my creative people: I'll know it when I see it."

Vincent got so frustrated that he slammed his fist into the wall of the house he was renting and put a large dent in it. When he finally went outside to his family, sitting by the pool, they looked at him nervously. "Are you okay?" his wife finally asked.

It took Vincent and his team two weeks to come up with an array of new options, and he asked to present them at Jobs's house rather than the office, hoping that it would be a more relaxed environment. Laying storyboards on the coffee table, he and Milner offered twelve approaches. One was inspirational and stirring. Another tried humor, with Michael Cera, the comic actor, wandering through a fake house making funny comments about the way people could use iPads. Others featured the iPad with celebrities, or set starkly on a white background, or starring in a little sitcom, or in a straightforward product demonstration.

After mulling over the options, Jobs realized what he wanted. Not humor, nor a celebrity, nor a demo. "It's got to make a statement," he said. "It needs to be a manifesto. This is big." He had announced that the iPad would change the world, and he wanted a campaign that reinforced that declaration. Other companies would come out with copycat tablets in a year or so, he said, and he wanted people to remember that the iPad was the real thing. "We need ads that stand up and declare what we have done."

He abruptly got out of his chair, looking a bit weak but smiling. "I've got to go have a massage now," he said. "Get to work."

So Vincent and Milner, along with the copywriter Eric Grunbaum, began crafting what they dubbed "The Manifesto." It would be fast-paced, with vibrant pictures and a thumping beat, and it would proclaim that the iPad was revolutionary. The music they chose was Karen O's pounding refrain from the Yeah Yeah Yeahs' "Gold Lion." As the iPad was shown doing magical things, a strong voice declared, "iPad is thin. iPad is beautiful. . . . It's crazy powerful. It's magical. . . . It's video, photos. More books than you could read in a lifetime. It's already a revolution, and it's only just begun."

Once the Manifesto ads had run their course, the team again tried something softer, shot as day-in-the-life documentaries by the young filmmaker Jessica Sanders. Jobs liked them—for a little while. Then he turned against them for the same reason he had reacted against the original Pottery Barn–style ads. "Dammit," he shouted, "they look like a Visa commercial, typical ad agency stuff."

He had been asking for ads that were different and new, but eventually he realized he did not want to stray from what he considered the Apple voice. For him, that voice had a distinctive set of qualities: simple, declarative, clean. "We went down that lifestyle path, and it seemed to be growing on Steve, and suddenly he said, 'I hate that stuff, it's not Apple,'" recalled Lee Clow. "He told us to get back to the Apple voice. It's a very simple, honest voice." And so they went back to a clean white background, with just a close-up showing off all the things that "iPad is . . ." and could do.

Apps

The iPad commercials were not about the device, but about what you could do with it. Indeed its success came not just from the beauty of the hardware but from the applications, known as apps, that allowed you to indulge in all sorts of delightful activities. There were thousands—and soon hundreds of thousands—of apps that you could download for free or for a few dollars. You could sling angry birds with the swipe of your finger, track your stocks, watch movies, read books and magazines, catch up on the news, play games, and waste glorious amounts of time. Once again the integration of the hardware, software, and store made it easy. But the apps also allowed the platform to be sort of open, in a very controlled way, to outside developers who wanted to create software and content for it—open, that is, like a carefully curated and gated community garden.

The apps phenomenon began with the iPhone. When it first came out in early 2007, there were no apps you could buy from outside developers, and Jobs initially resisted allowing them. He didn't want outsiders to create applications for the iPhone that could mess it up, infect it with viruses, or pollute its integrity.

Board member Art Levinson was among those pushing to allow iPhone apps. "I called him a half dozen times to lobby for the potential of the apps," he recalled. If Apple didn't allow them, indeed encourage them, another smartphone maker would, giving itself a competitive advantage. Apple's marketing chief Phil Schiller agreed. "I couldn't imagine that we would create something as powerful as the iPhone and not empower developers to make lots of apps," he recalled. "I knew customers would love them." From the outside, the venture capitalist John Doerr argued that permitting apps would spawn a profusion of new entrepreneurs who would create new services.

Jobs at first quashed the discussion, partly because he felt his team did not have the bandwidth to figure out all of the complexities that would be involved in policing third-party app developers. He wanted focus. "So he didn't want to talk about it," said Schiller. But as soon as the iPhone was launched, he was willing to hear the debate. "Every time the conversation happened, Steve seemed a little more open," said Levinson. There were freewheeling discussions at four board meetings.

Jobs soon figured out that there was a way to have the best of both worlds. He would permit outsiders to write apps, but they would have to meet strict standards, be tested and approved by Apple, and be sold only through the iTunes Store. It was a way to reap the advantage of empowering thousands of software developers while retaining enough control to protect the integrity of the iPhone and the simplicity of the customer experience. "It was an absolutely magical solution that hit the sweet spot," said Levinson. "It gave us the benefits of openness while retaining end-to-end control."

The App Store for the iPhone opened on iTunes in July 2008; the billionth download came nine months later. By the time the iPad went on sale in April 2010, there were 185,000 available iPhone apps. Most could also be used on the iPad, although they didn't take advantage of the bigger screen size. But in less than five months, developers had written twenty-five thousand new apps that were specifically configured for the iPad. By July 2011 there were 500,000 apps for both devices, and there had been more than fifteen billion downloads of them.

The App Store created a new industry overnight. In dorm rooms and garages and at major media companies, entrepreneurs invented new apps. John Doerr's venture capital firm created an iFund of $200 million to offer equity financing for the best ideas. Magazines and newspapers that had been giving away their content for free saw one last chance to put the genie of that dubious business model back into the bottle. Innovative publishers created new magazines, books, and learning materials just for the iPad. For example, the high-end publishing house Callaway, which had produced books ranging from Madonna's *Sex* to *Miss Spider's Tea Party*, decided to "burn the boats" and give up print altogether to focus on publishing books as interactive apps. By June 2011 Apple had paid out $2.5 billion to app developers.

The iPad and other app-based digital devices heralded a fundamental shift in the digital world. Back in the 1980s, going online usually meant dialing into a service like AOL, CompuServe, or Prodigy that charged fees for access to a carefully curated walled garden filled with content plus some exit gates that allowed braver users access to the Internet at large. The second phase, beginning in the early 1990s, was the advent of browsers that allowed everyone to freely surf the Internet using the hypertext transfer protocols of the World Wide Web, which linked billions of sites. Search engines arose so that people could easily find the websites they wanted. The release of the iPad portended a new model. Apps resembled the walled gardens of old. The creators could charge fees and offer more functions to the users who downloaded them. But the rise of apps also meant that the openness and linked nature of the web were sacrificed. Apps were not as easily linked or searchable. Because the iPad allowed the use of both apps and web browsing, it was not at war with the web model. But it did offer an alternative, for both the consumers and the creators of content.

Publishing and Journalism

With the iPod, Jobs had transformed the music business. With the iPad and its App Store, he began to transform all media, from publishing to journalism to television and movies.

Books were an obvious target, since Amazon's Kindle had shown there was an appetite for electronic books. So Apple created an iBooks Store, which sold electronic books the way the iTunes Store sold songs. There was, however, a slight difference in the business model. For the iTunes Store, Jobs had insisted that all songs be sold at one inexpensive price, initially 99 cents. Amazon's Jeff Bezos had tried to take a similar approach with ebooks, insisting on selling them for at most $9.99. Jobs came in and offered publishers what he had refused to offer record companies: They could set any price they wanted for their wares in the iBooks Store, and Apple would take 30%. Initially that meant prices were higher than on Amazon. Why would people pay Apple more? "That won't be the case," Jobs answered, when Walt Mossberg asked him that question at the iPad launch event. "The price will be the same." He was right.

The day after the iPad launch, Jobs described to me his thinking on books:

> Amazon screwed it up. It paid the wholesale price for some books, but started selling them below cost at $9.99. The publishers hated that—they thought it would trash their ability to sell hardcover books at $28. So before Apple even got on the scene, some booksellers were starting to withhold books from Amazon. So we told the publishers, "We'll go to the agency model, where you set the price, and we get our 30%, and yes, the customer pays a little more, but that's what you want anyway." But we also asked for a guarantee that if anybody else is selling the books

> cheaper than we are, then we can sell them at the lower price too. So they went to Amazon and said, "You're going to sign an agency contract or we're not going to give you the books."

Jobs acknowledged that he was trying to have it both ways when it came to music and books. He had refused to offer the music companies the agency model and allow them to set their own prices. Why? Because he didn't have to. But with books he did. "We were not the first people in the books business," he said. "Given the situation that existed, what was best for us was to do this akido move and end up with the agency model. And we pulled it off."

Right after the iPad launch event, Jobs traveled to New York in February 2010 to meet with executives in the journalism business. In two days he saw Rupert Murdoch, his son James, and the management of their *Wall Street Journal*; Arthur Sulzberger Jr. and the top executives at the *New York Times*; and executives at *Time, Fortune*, and other Time Inc. magazines. "I would love to help quality journalism," he later said. "We can't depend on bloggers for our news. We need real reporting and editorial oversight more than ever. So I'd love to find a way to help people create digital products where they actually can make money." Since he had gotten people to pay for music, he hoped he could do the same for journalism.

Publishers, however, turned out to be leery of his lifeline. It meant that they would have to give 30% of their revenue to Apple, but that wasn't the biggest problem. More important, the publishers feared that, under his system, they would no longer have a direct relationship with their subscribers; they wouldn't have their email address and credit card number so they could bill them, communicate with them, and market new products to them. Instead Apple would own the customers, bill them, and have their information in its own database. And because of its privacy policy, Apple would not share this information unless a customer gave explicit permission to do so.

Jobs was particularly interested in striking a deal with the *New York Times*, which he felt was a great newspaper in danger of declining because it had not figured out how to charge for digital content. "One of my personal projects this year, I've decided, is to try to help—whether they want it or not—the *Times*," he told me early in 2010. "I think it's important to the country for them to figure it out."

During his New York trip, he went to dinner with fifty top *Times* executives in the cellar private dining room at Pranna, an Asian restaurant. (He ordered a mango smoothie and a plain vegan pasta, neither of which was on the menu.) There he showed off the iPad and explained how important it was to find a modest price point for digital content that consumers would accept. He drew a chart of possible prices and volume. How many readers would they have if the *Times* were free? They already knew the answer to that extreme on the chart, because they were giving it away for free on the web already and had about twenty million regular visitors. And if they made it really expensive? They had data on that too; they charged print subscribers more than $300 a year and had about a million of them. "You should go after the midpoint, which is about ten million digital subscribers," he told them. "And that means your digital subs should be very cheap and simple, one click and $5 a month at most."

When one of the *Times* circulation executives insisted that the paper needed the email and credit card information for all of its subscribers, even if they subscribed through the App Store, Jobs said that Apple would not give it out. That angered the executive. It was unthinkable, he said, for the *Times* not to have that information. "Well, you can ask them for it, but if they won't voluntarily give it to you, don't blame me," Jobs said. "If you don't like it, don't use us. I'm not the one who got you in this jam. You're the ones who've spent the past five years giving away your paper online and not collecting anyone's credit card information."

Jobs also met privately with Arthur Sulzberger Jr. "He's a nice guy, and he's really proud of his new building, as he should be," Jobs said later. "I talked to him about what I thought he ought to do, but then nothing happened." It took a year, but in April 2011 the *Times* started charging for its digital edition and selling some subscriptions through Apple, abiding by the policies that Jobs established. It did, however, decide to charge approximately four times the $5 monthly charge that Jobs had suggested.

At the Time-Life Building, *Time*'s editor Rick Stengel played host. Jobs liked Stengel, who had assigned a talented team led by Josh Quittner to make a robust iPad version of the magazine each week. But he was upset to see Andy Serwer of *Fortune* there. Tearing up, he told Serwer how angry he still was about *Fortune*'s story two years earlier revealing details of his health and the stock options problems. "You kicked me when I was down," he said.

The bigger problem at Time Inc. was the same as the one at the *Times*: The magazine company did not want Apple to own its subscribers and prevent it from having a direct billing relationship. Time Inc. wanted to create apps that would direct readers to its own website in order to buy a subscription. Apple refused. When *Time* and other magazines submitted apps that did this, they were denied the right to be in the App Store.

Jobs tried to negotiate personally with the CEO of Time Warner, Jeff Bewkes, a savvy pragmatist with a no-bullshit charm to him. They had dealt with each other a few years earlier over video rights for the iPod Touch; even though Jobs had not been able to convince him to do a deal involving HBO's exclusive rights to show movies soon after their release, he admired Bewkes's straight and decisive style. For his part, Bewkes respected Jobs's ability to be both a strategic thinker and a master of the tiniest details. "Steve can go readily from the overarching principals into the details," he said.

When Jobs called Bewkes about making a deal for Time Inc. magazines on the iPad, he started off by warning that the print business "sucks," that "nobody really wants your magazines," and that Apple was offering a great opportunity to sell digital subscriptions, but "your guys don't get it." Bewkes didn't agree with any of those premises. He said he was happy for Apple to sell digital subscriptions for Time Inc. Apple's 30% take was not the problem. "I'm telling you right now, if you sell a sub for us, you can have 30%," Bewkes told him.

"Well, that's more progress than I've made with anybody," Jobs replied.

"I have only one question," Bewkes continued. "If you sell a subscription to my magazine, and I give you the 30%, who has the subscription—you or me?"

"I can't give away all the subscriber info because of Apple's privacy policy," Jobs replied.

"Well, then, we have to figure something else out, because I don't want my whole subscription base to become subscribers of yours, for you to then aggregate at the Apple store," said Bewkes. "And the next thing you'll do, once you have a monopoly, is come back and tell me that my magazine shouldn't be $4 a copy but instead should be $1. If someone subscribes to our magazine, we need to know who it is, we need to be able to create online communities of those people, and we need the right to pitch them directly about renewing."

Jobs had an easier time with Rupert Murdoch, whose News Corp. owned the *Wall Street Journal, New York Post*, newspapers around the world, Fox Studios, and the Fox News Channel. When Jobs met with Murdoch and his team, they also pressed the case that they should share ownership of the subscribers that came in through the App Store. But when Jobs refused, something interesting happened. Murdoch is not known as a pushover, but he knew that he did not have the leverage on this issue, so he accepted Jobs's terms. "We would prefer to own the subscribers, and we pushed for that," recalled Murdoch. "But Steve wouldn't do a deal on those terms, so I said, 'Okay, let's get on with it.' We didn't see any reason to mess around. He wasn't going to bend—and I wouldn't have bent if I were in his position—so I just said yes."

Murdoch even launched a digital-only daily newspaper, *The Daily*, tailored specifically for the iPad. It would be sold in the App Store, on the terms dictated by Jobs, at 99 cents a week. Murdoch himself took a team to Cupertino to show the proposed design. Not surprisingly, Jobs hated it. "Would you allow our designers to help?" he asked. Murdoch accepted. "The Apple designers had a crack at it," Murdoch recalled, "and our folks went back and had another crack, and ten days later we went back and showed them both, and he actually liked our team's version better. It stunned us."

The Daily, which was neither tabloidy nor serious, but instead a rather midmarket product like *USA Today*, was not very successful. But it did help create an odd-couple bonding between Jobs and Murdoch. When Murdoch asked him to speak at his June 2010 News Corp. annual management retreat, Jobs made an exception to his rule of never doing such appearances. James Murdoch led him in an after-dinner interview that lasted almost two hours. "He was very blunt and critical of what newspapers were doing in technology," Murdoch recalled. "He told us we were going to find it hard to get things right, because you're in New York, and anyone who's any good at tech works in Silicon Valley." This did not go down very well with the president of the Wall Street Journal Digital Network, Gordon McLeod, who pushed back a bit. At the end, McLeod came up to Jobs and said, "Thanks, it was a wonderful evening, but you probably just cost me my job." Murdoch chuckled a bit when he described the scene to me. "It ended up being true," he said. McLeod was out within three months.

In return for speaking at the retreat, Jobs got Murdoch to hear him out on Fox News, which he believed was destructive, harmful to the nation, and a blot on Murdoch's reputation. "You're blowing it with Fox News," Jobs told him over dinner. "The axis today is not liberal and conservative, the axis is constructive-destructive, and you've cast your lot with the destructive people. Fox has become an incredibly destructive force in our society. You can be better, and this is going to be your legacy if you're not careful." Jobs said he thought Murdoch did not really like how far Fox had gone. "Rupert's a builder, not a tearer-downer," he said. "I've had some meetings with James, and I think he agrees with me. I can just tell."

Murdoch later said he was used to people like Jobs complaining about Fox. "He's got sort of a left-wing view on this," he said. Jobs asked him to have his folks make a reel of a week of Sean Hannity and Glenn Beck shows—he thought that they were more destructive than Bill O'Reilly—and Murdoch agreed to do so. Jobs later told me that he was going to ask Jon Stewart's team to put together a similar reel for Murdoch to watch. "I'd be happy to see it," Murdoch said, "but he hasn't sent it to me."

Murdoch and Jobs hit it off well enough that Murdoch went to his Palo Alto house for dinner twice more during the next year. Jobs joked that he had to hide the dinner knives on such occasions, because he was afraid that his liberal wife was going to eviscerate Murdoch when he walked in. For his part, Murdoch was reported to have uttered a great line about the organic vegan dishes typically served: "Eating dinner at Steve's is a great experience, as long as you get out before the local restaurants close." Alas, when I asked Murdoch if he had ever said that, he didn't recall it.

One visit came early in 2011. Murdoch was due to pass through Palo Alto on February 24, and he texted Jobs to tell him so. He didn't know it was Jobs's fifty-sixth birthday, and Jobs didn't mention it when he texted back inviting him to dinner. "It was my way of making sure Laurene didn't veto the plan," Jobs joked. "It was my birthday, so she had to let me have Rupert over." Erin and Eve were there, and Reed jogged over from Stanford near the end of the dinner. Jobs showed off the designs for his planned boat, which Murdoch thought looked beautiful on the inside but "a bit plain" on the outside. "It certainly shows great optimism about his health that he was talking so much about building it," Murdoch later said.

At dinner they talked about the importance of infusing an entrepreneurial and nimble culture into a company. Sony failed to do that, Murdoch said. Jobs agreed. "I used to believe that a really big company couldn't have a clear corporate culture," Jobs said. "But I now believe it can be done. Murdoch's done it. I think I've done it at Apple."

Most of the dinner conversation was about education. Murdoch had just hired Joel Klein, the former chancellor of the New York City Department of Education, to start a digital curriculum division. Murdoch recalled that Jobs was somewhat dismissive of the idea that technology could transform education. But Jobs agreed with Murdoch that the paper textbook business would be blown away by digital learning materials.

In fact Jobs had his sights set on textbooks as the next business he wanted to transform. He believed it was an $8 billion a year industry ripe for digital destruction. He was also struck by the fact that many schools, for security reasons, don't have lockers, so kids have to lug a heavy backpack around. "The iPad would solve that," he said. His idea was to hire great textbook writers to create digital versions, and make them a feature of the iPad. In addition, he held meetings with the major publishers, such as Pearson Education, about partnering with Apple. "The process by which states certify textbooks is corrupt," he said. "But if we can make the textbooks free, and they come with the iPad, then they don't have to be certified. The crappy economy at the state level will last for a decade, and we can give them an opportunity to circumvent that whole process and save money."

CHAPTER THIRTY-NINE

NEW BATTLES

And Echoes of Old Ones

Google: Open versus Closed

A few days after he unveiled the iPad in January 2010, Jobs held a "town hall" meeting with employees at Apple's campus. Instead of exulting about their transformative new product, however, he went into a rant against Google for producing the rival Android operating system. Jobs was furious that Google had decided to compete with Apple in the phone business. "We did not enter the search business," he said. "They entered the phone business. Make no mistake. They want to kill the iPhone. We won't let them." A few minutes later, after the meeting moved on to another topic, Jobs returned to his tirade to attack Google's famous values slogan. "I want to go back to that other question first and say one more thing. This 'Don't be evil' mantra, it's bullshit."

Jobs felt personally betrayed. Google's CEO Eric Schmidt had been on the Apple board during the development of the iPhone and iPad, and Google's founders, Larry Page and Sergey Brin, had treated him as a mentor. He felt ripped off. Android's touchscreen interface was adopting more and more of the features—multi-touch, swiping, a grid of app icons—that Apple had created.

Jobs had tried to dissuade Google from developing Android. He had gone to Google's headquarters near Palo Alto in 2008 and gotten into a shouting match with Page, Brin, and the head of the Android development team, Andy Rubin. (Because Schmidt was then on the Apple board, he recused himself from discussions involving the iPhone.) "I said we would, if we had good relations, guarantee Google access to the iPhone and guarantee it one or two icons on the home screen," he recalled. But he also threatened that if Google continued to develop Android and used any iPhone features, such as multi-touch, he would sue. At first Google avoided copying certain features, but in January 2010 HTC introduced an Android phone that boasted multi-touch and many other aspects of the iPhone's look and feel. That was the context for Jobs's pronouncement that Google's "Don't be evil" slogan was "bullshit."

So Apple filed suit against HTC (and, by extension, Android), alleging infringement of twenty of its patents. Among them were patents covering various multi-touch gestures, swipe to open, double-tap to zoom, pinch and expand, and the sensors that determined how a device was being held. As he sat in his house in Palo Alto the week the lawsuit was filed, he became angrier than I had ever seen him:

> Our lawsuit is saying, "Google, you fucking ripped off the iPhone, wholesale ripped us off." Grand theft. I will spend my last dying breath if I need to, and I will spend every penny of Apple's $40 billion in the bank, to right this wrong. I'm going to destroy Android, because it's a stolen product. I'm willing to go to thermonuclear war on this. They are scared to death, because they know they are guilty. Outside of Search, Google's products—Android, Google Docs—are shit.

A few days after this rant, Jobs got a call from Schmidt, who had resigned from the Apple board the previous summer. He suggested they get together for coffee, and they met at a café in a Palo Alto shopping center. "We spent half the time talking about personal matters, then half the time on his perception that Google had stolen Apple's user interface designs," recalled Schmidt. When it came to the latter subject, Jobs did most of the talking. Google had ripped him off, he said in colorful language. "We've got you red-handed," he told Schmidt. "I'm not interested in settling. I don't want your money. If you offer me $5 billion, I won't want it. I've got plenty of money. I want you to stop using our ideas in Android, that's all I want." They resolved nothing.

Underlying the dispute was an even more fundamental issue, one that had unnerving historical resonance. Google presented Android as an "open" platform; its open-source code was freely available for multiple hardware makers to use on whatever phones or tablets they built. Jobs, of course, had a dogmatic belief that Apple should closely integrate its operating systems with its hardware. In the 1980s Apple had not licensed out its Macintosh operating system, and Microsoft eventually gained dominant market share by licensing its system to multiple hardware makers and, in Jobs's mind, ripping off Apple's interface.

The comparison between what Microsoft wrought in the 1980s and what Google was trying to do in 2010 was not exact, but it was close enough to be unsettling—and infuriating. It exemplified the great debate of the digital age: closed versus open, or as Jobs framed it, integrated versus fragmented. Was it better, as Apple believed and as Jobs's own controlling perfectionism almost compelled, to tie the hardware and software and content handling into one tidy system that assured a simple user experience? Or was it better to give users and manufacturers more choice and free up avenues for more innovation, by creating software systems that could be modified and used on different devices? "Steve has a particular way that he wants to run Apple, and it's the same as it was twenty years ago, which is that Apple is a brilliant innovator of closed systems," Schmidt later told me. "They don't want people to be on their platform without permission. The benefits of a closed platform is control. But Google has a specific belief that open is the better approach, because it leads to more options and competition and consumer choice."

So what did Bill Gates think as he watched Jobs, with his closed strategy, go into battle against Google, as he had done against Microsoft twenty-five years earlier? "There are some benefits to being more closed, in terms of how much you control the experience, and certainly at times he's had the benefit of that," Gates told me. But refusing to license the Apple iOS, he added, gave competitors like Android the chance to gain greater volume. In addition, he argued, competition among a variety of devices and manufacturers leads to greater consumer choice and more innovation. "These companies are not all building pyramids next to Central Park," he said, poking fun at Apple's Fifth Avenue store, "but they are coming up with innovations based on competing for consumers." Most of the improvements in PCs, Gates pointed out, came because consumers had a lot of choices, and that would someday be the case in the world of mobile devices. "Eventually, I think, open will succeed, but that's where I come from. In the long run, the coherence thing, you can't stay with that."

Jobs believed in "the coherence thing." His faith in a controlled and closed environment remained unwavering, even as Android gained market share. "Google says we exert more control than they do, that we are closed and they are open," he railed when I told him what Schmidt had said. "Well, look at the results—Android's a mess. It has different screen sizes and versions, over a hundred permutations." Even if Google's approach might eventually win in the marketplace, Jobs found it repellent. "I like being responsible for the whole user experience. We do it not to make money. We do it because we want to make great products, not crap like Android."

Flash, the App Store, and Control

Jobs's insistence on end-to-end control was manifested in other battles as well. At the town hall meeting where he attacked Google, he also assailed Adobe's multimedia platform for websites, Flash, as a "buggy" battery hog made by "lazy" people. The iPod and iPhone, he said, would never run Flash. "Flash is a spaghetti-ball piece of technology that has lousy performance and really bad security problems," he said to me later that week.

He even banned apps that made use of a compiler created by Adobe that translated Flash code so that it would be compatible with Apple's iOS. Jobs disdained the use of compilers that allowed developers to write their products once and have them ported to multiple operating systems. "Allowing Flash to be ported across platforms means things get dumbed down to the lowest common denominator," he said. "We spend lots of effort to make our platform better, and the developer doesn't get any benefit if Adobe only works with functions that every platform has. So we said that we want developers to take advantage of our better features, so that their apps work better on our platform than they work on anybody else's." On that he was right. Losing the ability to differentiate Apple's platforms—allowing them to become commoditized like HP and Dell machines—would have meant death for the company.

There was, in addition, a more personal reason. Apple had invested in Adobe in 1985, and together the two companies had launched the desktop publishing revolution. "I helped put Adobe on the map," Jobs claimed. In 1999, after he returned to Apple, he had asked Adobe to start making its video editing software and other products for the iMac and its new operating system, but Adobe refused. It focused on making its products for Windows. Soon after, its founder, John Warnock, retired. "The soul of Adobe disappeared when Warnock left," Jobs said. "He was the inventor, the person I related to. It's been a bunch of suits since then, and the company has turned out crap."

When Adobe evangelists and various Flash supporters in the blogosphere attacked Jobs for being too controlling, he decided to write and post an open letter. Bill Campbell, his friend and board member, came by his house to go over it. "Does it sound like I'm just trying to stick it to Adobe?" he asked Campbell. "No, it's facts, just put it out there," the coach said. Most of the letter focused on the technical drawbacks of Flash. But despite Campbell's coaching, Jobs couldn't resist venting at the end about the problematic history between the two companies. "Adobe was the last major third party developer to fully adopt Mac OS X," he noted.

Apple ended up lifting some of its restrictions on cross-platform compilers later in the year, and Adobe was able to come out with a Flash authoring tool that took advantage of the key features of Apple's iOS. It was a bitter war, but one in which Jobs had the better argument. In the end it pushed Adobe and other developers of compilers to make better use of the iPhone and iPad interface and its special features.

Jobs had a tougher time navigating the controversies over Apple's desire to keep tight control over which apps could be downloaded onto the iPhone and iPad. Guarding against apps that contained viruses or violated the user's privacy made sense; preventing apps that took users to other websites to buy subscriptions, rather than doing it through the iTunes Store, at least had a business rationale. But Jobs and his team went further: They decided to ban any app that defamed people, might be politically explosive, or was deemed by Apple's censors to be pornographic.

The problem of playing nanny became apparent when Apple rejected an app featuring the animated political cartoons of Mark Fiore, on the rationale that his attacks on the Bush administration's policy on torture violated the restriction against defamation. Its decision became public, and was subjected to ridicule, when Fiore won the 2010 Pulitzer Prize for editorial cartooning in April. Apple had to reverse itself, and Jobs made a public apology. "We're guilty of making mistakes," he said. "We're doing the best we can, we're learning as fast as we can—but we thought this rule made sense."

It was more than a mistake. It raised the specter of Apple's controlling what apps we got to see and read, at least if we wanted to use an iPad or iPhone. Jobs seemed in danger of becoming the Orwellian Big Brother he had gleefully destroyed in Apple's "1984" Macintosh ad. He took the issue seriously. One day he called the *New York Times* columnist Tom Friedman to discuss how to draw lines without looking like a censor. He asked Friedman to head an advisory group to help come up with guidelines, but the columnist's publisher said it would be a conflict of interest, and no such committee was formed.

The pornography ban also caused problems. "We believe we have a moral responsibility to keep porn off the iPhone," Jobs declared in an email to a customer. "Folks who want porn can buy an Android."

This prompted an email exchange with Ryan Tate, the editor of the tech gossip site Valleywag. Sipping a stinger cocktail one evening, Tate shot off an email to Jobs decrying Apple's heavy-handed control over which apps passed muster. "If Dylan was 20 today, how would he feel about your company?" Tate asked. "Would he think the iPad had the faintest thing to do with 'revolution'? Revolutions are about freedom."

To Tate's surprise, Jobs responded a few hours later, after midnight. "Yep," he said, "freedom from programs that steal your private data. Freedom from programs that trash your battery. Freedom from porn. Yep, freedom. The times they are a changin', and some traditional PC folks feel like their world is slipping away. It is."

In his reply, Tate offered some thoughts on Flash and other topics, then returned to the censorship issue. "And you know what? I don't want 'freedom from porn.' Porn is just fine! And I think my wife would agree."

"You might care more about porn when you have kids," replied Jobs. "It's not about freedom, it's about Apple trying to do the right thing for its users." At the end he added a zinger: "By the way, what have you done that's so great? Do you create anything, or just criticize others' work and belittle their motivations?"

Tate admitted to being impressed. "Rare is the CEO who will spar one-on-one with customers and bloggers like this," he wrote. "Jobs deserves big credit for breaking the mold of the typical American executive, and not just because his company makes such hugely superior products: Jobs not only built and then rebuilt his company around some very strong opinions about digital life, but he's willing to defend them in public. Vigorously. Bluntly. At two in the morning on a weekend." Many in the blogosphere agreed, and they sent Jobs emails praising his feistiness. Jobs was proud as well; he forwarded his exchange with Tate and some of the kudos to me.

Still, there was something unnerving about Apple's decreeing that those who bought their products shouldn't look at controversial political cartoons or, for that matter, porn. The humor site eSarcasm.com launched a "Yes, Steve, I want porn" web campaign. "We are dirty, sex-obsessed miscreants who need access to smut 24 hours a day," the site declared. "Either that, or we just enjoy the idea of an uncensored, open society where a techno-dictator doesn't decide what we can and cannot see."

• • •

At the time Jobs and Apple were engaged in a battle with Valleywag's affiliated website, Gizmodo, which had gotten hold of a test version of the unreleased iPhone 4 that a hapless Apple engineer had left in a bar. When the police, responding to Apple's complaint, raided the house of the reporter, it raised the question of whether control freakiness had combined with arrogance.

Jon Stewart was a friend of Jobs and an Apple fan. Jobs had visited him privately in February when he took his trip to New York to meet with media executives. But that didn't stop Stewart from going after him on *The Daily Show.* "It wasn't supposed to be this way! Microsoft was supposed to be the evil one!" Stewart said, only half-jokingly. Behind him, the word "appholes" appeared on the screen. "You guys were the rebels, man, the underdogs. But now, are you becoming The Man? Remember back in 1984, you had those awesome ads about overthrowing Big Brother? Look in the mirror, man!"

By late spring the issue was being discussed among board members. "There is an arrogance," Art Levinson told me over lunch just after he had raised it at a meeting. "It ties into Steve's personality. He can react viscerally and lay out his convictions in a forceful manner." Such arrogance was fine when Apple was the feisty underdog. But now Apple was dominant in the mobile market. "We need to make the transition to being a big company and dealing with the hubris issue," said Levinson. Al Gore also talked about the problem at board meetings. "The context for Apple is changing dramatically," he recounted. "It's not hammer-thrower against Big Brother. Now Apple's big, and people see it as arrogant." Jobs became defensive when the topic was raised. "He's still adjusting to it," said Gore. "He's better at being the underdog than being a humble giant."

Jobs had little patience for such talk. The reason Apple was being criticized, he told me then, was that "companies like Google and Adobe are lying about us and trying to tear us down." What did he think of the suggestion that Apple sometimes acted arrogantly? "I'm not worried about that," he said, "because we're not arrogant."

Antennagate: Design versus Engineering

In many consumer product companies, there's tension between the designers, who want to make a product look beautiful, and the engineers, who need to make sure it fulfills its functional requirements. At Apple, where Jobs pushed both design and engineering to the edge, that tension was even greater.

When he and design director Jony Ive became creative coconspirators back in 1997, they tended to view the qualms expressed by engineers as evidence of a can't-do attitude that needed to be overcome. Their faith that awesome design could force superhuman feats of engineering was reinforced by the success of the iMac and iPod. When engineers said something couldn't be done, Ive and Jobs pushed them to try, and usually they succeeded. There were occasional small problems. The iPod Nano, for example, was prone to getting scratched because Ive believed that a clear coating would lessen the purity of his design. But that was not a crisis.

When it came to designing the iPhone, Ive's design desires bumped into a fundamental law of physics that could not be changed even by a reality distortion field. Metal is not a great material to put near an antenna. As Michael Faraday showed, electromagnetic waves flow around the surface of metal, not through it. So a metal enclosure around a phone can create what is known as a Faraday cage, diminishing the signals that get in or out. The original iPhone started with a plastic band at the bottom, but Ive thought that would wreck the design integrity and asked that there be an aluminum rim all around. After that ended up working out, Ive designed the iPhone 4 with a steel rim. The steel would be the structural support, look really sleek, and serve as part of the phone's antenna.

There were significant challenges. In order to serve as an antenna, the steel rim had to have a tiny gap. But if a person covered that gap with a finger or sweaty palm, there could be some signal loss. The engineers suggested a clear coating over the metal to help prevent this, but again Ive felt that this would detract from the brushed-metal look. The issue was presented to Jobs at various meetings, but he thought the engineers were crying wolf. You can make this work, he said. And so they did.

And it worked, almost perfectly. But not totally perfectly. When the iPhone 4 was released in June 2010, it looked awesome, but a problem soon became evident: If you held the phone a certain way, especially using your left hand so your palm covered the tiny gap, you could lose your connection. It occurred with perhaps one in a hundred calls. Because Jobs insisted on keeping his unreleased products secret (even the phone that Gizmodo scored in a bar had a fake case around it), the iPhone 4 did not go through the live testing that most electronic devices get. So the flaw was not caught before the massive rush to buy it began. "The question is whether the twin policies of putting design in front of engineering and having a policy of supersecrecy surrounding unreleased products helped Apple," Tony Fadell said later. "On the whole, yes, but unchecked power is a bad thing, and that's what happened."

Had it not been the Apple iPhone 4, a product that had everyone transfixed, the issue of a few extra dropped calls would not have made news. But it became known as "Antennagate," and it boiled to a head in early July, when *Consumer Reports* did some rigorous tests and said that it could not recommend the iPhone 4 because of the antenna problem.

Jobs was in Kona Village, Hawaii, with his family when the issue arose. At first he was defensive. Art Levinson was in constant contact by phone, and Jobs insisted that the problem stemmed from Google and Motorola making mischief. "They want to shoot Apple down," he said.

Levinson urged a little humility. "Let's try to figure out if there's something wrong," he said. When he again mentioned the perception that Apple was arrogant, Jobs didn't like it. It went against his black-white, right-wrong way of viewing the world. Apple was a company of principle, he felt. If others failed to see that, it was their fault, not a reason for Apple to play humble.

Jobs's second reaction was to be hurt. He took the criticism personally and became emotionally anguished. "At his core, he doesn't do things that he thinks are blatantly wrong, like some pure pragmatists in our business," Levinson said. "So if he feels he's right, he will just charge ahead rather than question himself." Levinson urged him not to get depressed. But Jobs did. "Fuck this, it's not worth it," he told Levinson. Finally Tim Cook was able to shake him out of his lethargy. He quoted someone as saying that Apple was becoming the new Microsoft, complacent and arrogant. The next day Jobs changed his attitude. "Let's get to the bottom of this," he said.

When the data about dropped calls were assembled from AT&T, Jobs realized there was a problem, even if it was more minor than people were making it seem. So he flew back from Hawaii. But before he left, he made some phone calls. It was time to gather a couple of trusted old hands, wise men who had been with him during the original Macintosh days thirty years earlier.

His first call was to Regis McKenna, the public relations guru. "I'm coming back from Hawaii to deal with this antenna thing, and I need to bounce some stuff off of you," Jobs told him. They agreed to meet at the Cupertino boardroom at 1:30 the next afternoon. The second call was to the adman Lee Clow. He had tried to retire from the Apple account, but Jobs liked having him around. His colleague James Vincent was summoned as well.

Jobs also decided to bring his son Reed, then a high school senior, back with him from Hawaii. "I'm going to be in meetings 24/7 for probably two days and I want you to be in every single one because you'll learn more in those two days than you would in two years at business school," he told him. "You're going to be in the room with the best people in the world making really tough decisions and get to see how the sausage is made." Jobs got a little misty-eyed when he recalled the experience. "I would go through that all again just for that opportunity to have him see me at work," he said. "He got to see what his dad does."

They were joined by Katie Cotton, the steady public relations chief at Apple, and seven other top executives. The meeting lasted all afternoon. "It was one of the greatest meetings of my life," Jobs later said. He began by laying out all the data they had gathered. "Here are the facts. So what should we do about it?"

McKenna was the most calm and straightforward. "Just lay out the truth, the data," he said. "Don't appear arrogant, but appear firm and confident." Others, including Vincent, pushed Jobs to be more apologetic, but McKenna said no. "Don't go into the press conference with your tail between your legs," he advised. "You should just say: 'Phones aren't perfect, and we're not perfect. We're human and doing the best we can, and here's the data.'" That became the strategy. When the topic turned to the perception of arrogance, McKenna urged him not to worry too much. "I don't think it would work to try to make Steve look humble," McKenna explained later. "As Steve says about himself, 'What you see is what you get.'"

At the press event that Friday, held in Apple's auditorium, Jobs followed McKenna's advice. He did not grovel or apologize, yet he was able to defuse the problem by showing that Apple understood it and would try to make it right. Then he changed the framework of the discussion, saying that all cell phones had some problems. Later he told me that he had sounded a bit "too annoyed" at the event, but in fact he was able to strike a tone that was unemotional and straightforward. He captured it in four short, declarative sentences: "We're not perfect. Phones are not perfect. We all know that. But we want to make our users happy."

If anyone was unhappy, he said, they could return the phone (the return rate turned out to be 1.7%, less than a third of the return rate for the iPhone 3GS or most other phones) or get a free bumper case from Apple. He went on to report data showing that other mobile phones had similar problems. That was not totally true. Apple's antenna design made it slightly worse than most other phones, including earlier versions of the iPhone. But it was true that the media frenzy over the iPhone 4's dropped calls was overblown. "This is blown so out of proportion that it's incredible," he said. Instead of being appalled that he didn't grovel or order a recall, most customers realized that he was right.

The wait list for the phone, which was already sold out, went from two weeks to three. It remained the company's fastest-selling product ever. The media debate shifted to the issue of whether Jobs was right to assert that other smartphones had the same antenna problems. Even if the answer was no, that was a better story to face than one about whether the iPhone 4 was a defective dud.

Some media observers were incredulous. "In a bravura demonstration of stonewalling, righteousness, and hurt sincerity, Steve Jobs successfully took to the stage the other day to deny the problem, dismiss the criticism, and spread the blame among other smartphone makers," Michael Wolff of newser.com wrote. "This is a level of modern marketing, corporate spin, and crisis management about which you can only ask with stupefied incredulity and awe: How do they get away with it? Or, more accurately, how does he get away with it?" Wolff attributed it to Jobs's mesmerizing effect as "the last charismatic individual." Other CEOs would be offering abject apologies and swallowing massive recalls, but Jobs didn't have to. "The grim, skeletal appearance, the absolutism, the ecclesiastical bearing, the sense of his relationship with the sacred, really works, and, in this instance, allows him the privilege of magisterially deciding what is meaningful and what is trivial."

Scott Adams, the creator of the cartoon strip *Dilbert*, was also incredulous, but far more admiring. He wrote a blog entry a few days later (which Jobs proudly emailed around) that marveled at how Jobs's "high ground maneuver" was destined to be studied as a new public relations standard. "Apple's response to the iPhone 4 problem didn't follow the public relations playbook, because Jobs decided to rewrite the playbook," Adams wrote. "If you want to know what genius looks like, study Jobs' words." By proclaiming up front that phones are not perfect, Jobs changed the context of the argument with an indisputable assertion. "If Jobs had not changed the context from the iPhone 4 to all smartphones in general, I could make you a hilarious comic strip about a product so poorly made that it won't work if it comes in contact with a human hand. But as soon as the context is changed to 'all smartphones have problems,' the humor opportunity is gone. Nothing kills humor like a general and boring truth."

Here Comes the Sun

There were a few things that needed to be resolved for the career of Steve Jobs to be complete. Among them was an end to the Thirty Years' War with the band he loved, the Beatles. In 2007 Apple had settled its trademark battle with Apple Corps, the holding company of the Beatles, which had first sued the fledgling computer company over use of the name in 1978. But that still did not get the Beatles into the iTunes Store. The band was the last major holdout, primarily because it had not resolved with EMI music, which owned most of its songs, how to handle the digital rights.

By the summer of 2010 the Beatles and EMI had sorted things out, and a four-person summit was held in the boardroom in Cupertino. Jobs and his vice president for the iTunes Store, Eddy Cue, played host to Jeff Jones, who managed the Beatles' interests, and Roger Faxon, the chief of EMI music. Now that the Beatles were ready to go digital, what could Apple offer to make that milestone special? Jobs had been anticipating this day for a long time. In fact he and his advertising team, Lee Clow and James Vincent, had mocked up some ads and commercials three years earlier when strategizing on how to lure the Beatles on board.

"Steve and I thought about all the things that we could possibly do," Cue recalled. That included taking over the front page of the iTunes Store, buying billboards featuring the best photographs of the band, and running a series of television ads in classic Apple style. The topper was offering a $149 box set that included all thirteen Beatles studio albums, the two-volume "Past Masters" collection, and a nostalgia-inducing video of the 1964 Washington Coliseum concert.

Once they reached an agreement in principle, Jobs personally helped choose the photographs for the ads. Each commercial ended with a still black-and-white shot of Paul McCartney and John Lennon, young and smiling, in a recording studio looking down at a piece of music. It evoked the old photographs of Jobs and Wozniak looking at an Apple circuit board. "Getting the Beatles on iTunes was the culmination of why we got into the music business," said Cue.

CHAPTER FORTY

TO INFINITY

The Cloud, the Spaceship, and Beyond

The iPad 2

Even before the iPad went on sale, Jobs was thinking about what should be in the iPad 2. It needed front and back cameras—everyone knew that was coming—and he definitely wanted it to be thinner. But there was a peripheral issue that he focused on that most people hadn't thought about: The cases that people used covered the beautiful lines of the iPad and detracted from the screen. They made fatter what should be thinner. They put a pedestrian cloak on a device that should be magical in all of its aspects.

Around that time he read an article about magnets, cut it out, and handed it to Jony Ive. The magnets had a cone of attraction that could be precisely focused. Perhaps they could be used to align a detachable cover. That way, it could snap onto the front of an iPad but not have to engulf the entire device. One of the guys in Ive's group worked out how to make a detachable cover that could connect with a magnetic hinge. When you began to open it, the screen would pop to life like the face of a tickled baby, and then the cover could fold into a stand.

It was not high-tech; it was purely mechanical. But it was enchant-

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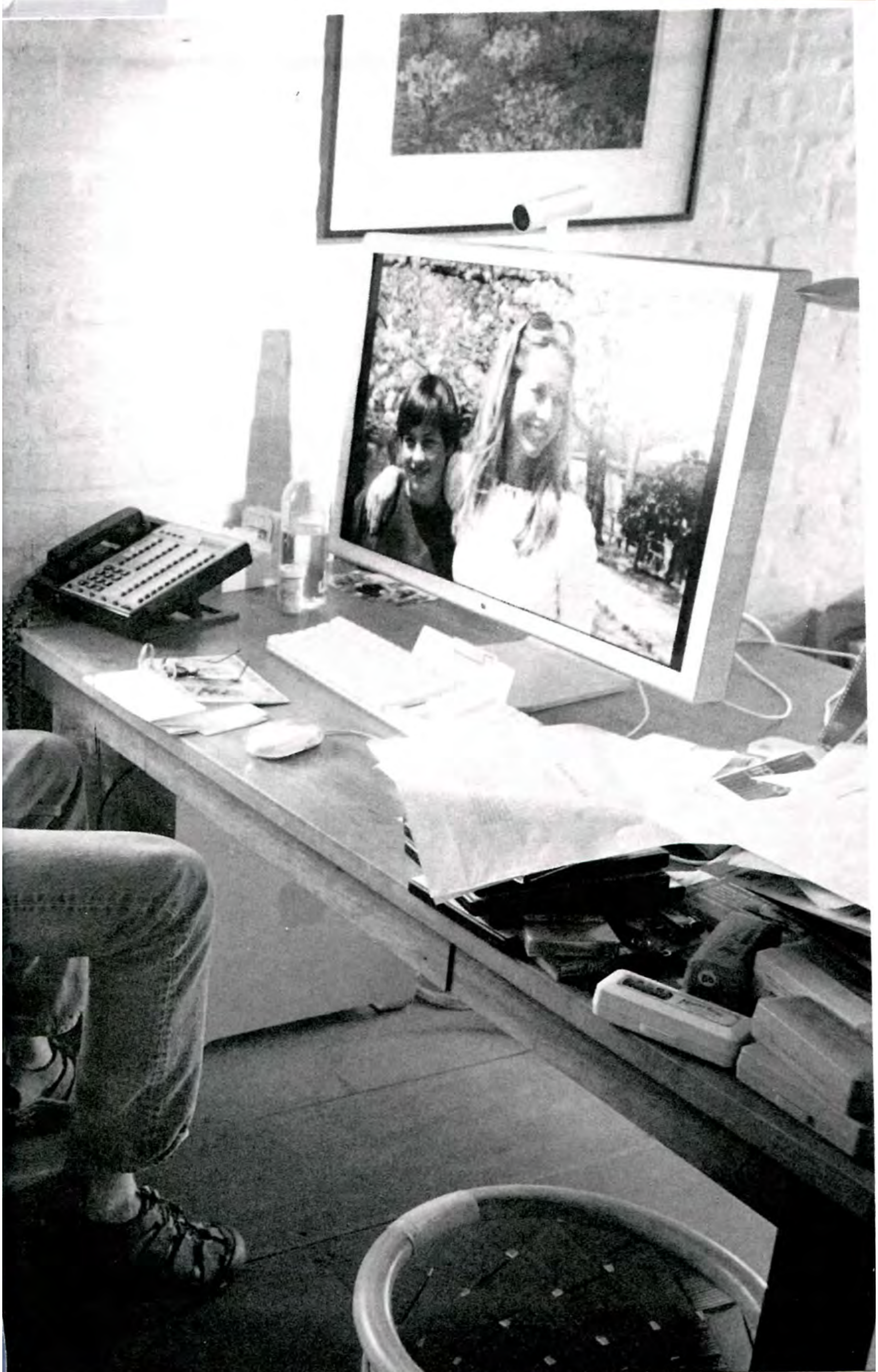

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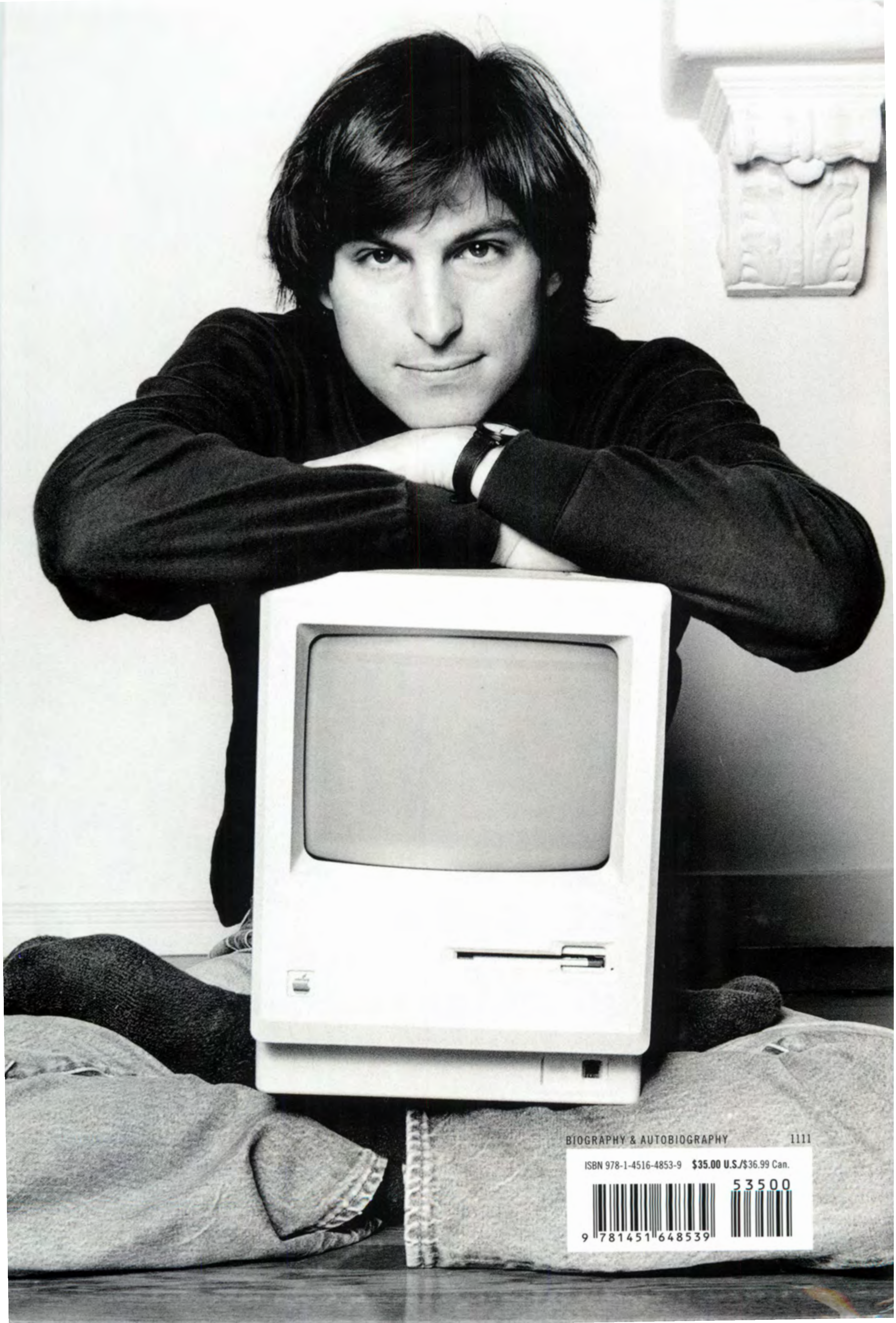

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